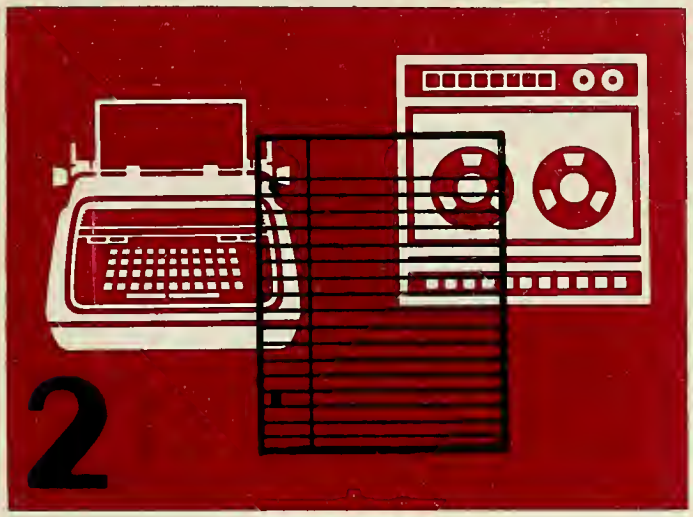

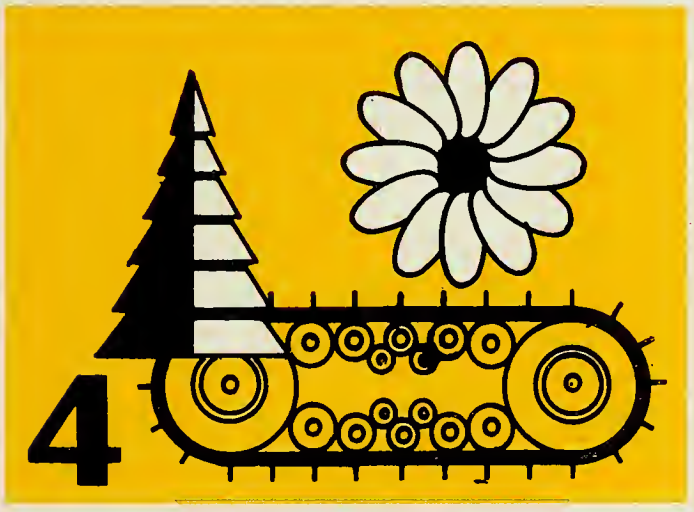

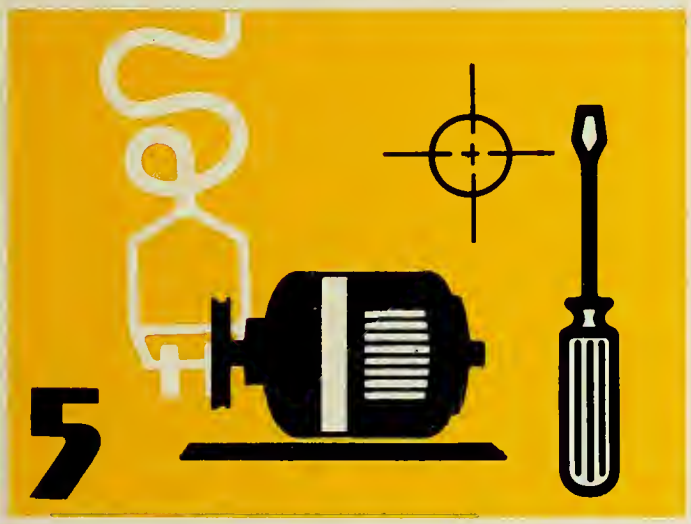

williamsport area community college

74/75

The Williamsport Area Community College

A Two-Year, Co-Educational,

Publicly Supported Institution

Serving North Central Pennsylvania;

Fully Accredited Member of

Middle States Association of Colleges and Secondary Schools.

1 building technologies

2 business and computer science

3 communications, humanities, and social sciences

4 earth science

5 electrical electronics

6 engineering and design technologies

7 public service and health occupations

8 science and mathmatics

9 transportation technologies

williamsport area community college

Penn College
ARCHIVES
W.T.I. W.A.C.C.
1941 - 1965 - 1989 -

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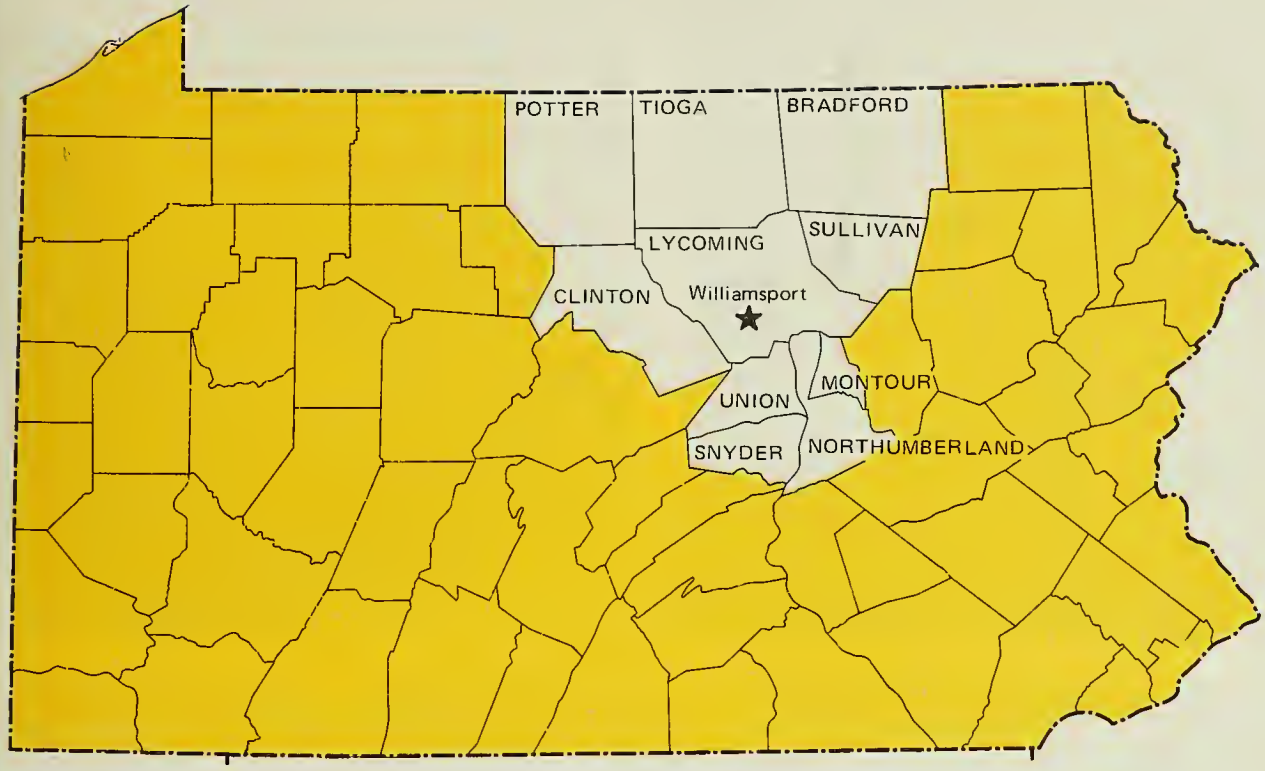


WACC SPONSOR SCHOOL DISTRICTS

Bradford County
- Canton Area
- Troy Area

Clinton County
- Keystone Central

Columbia County
- Millville

Lycoming County
- East Lycoming
- Jersey Shore Area
- Montgomery Area
- Montoursville Area
- South Williamsport Area
- Williamsport Area

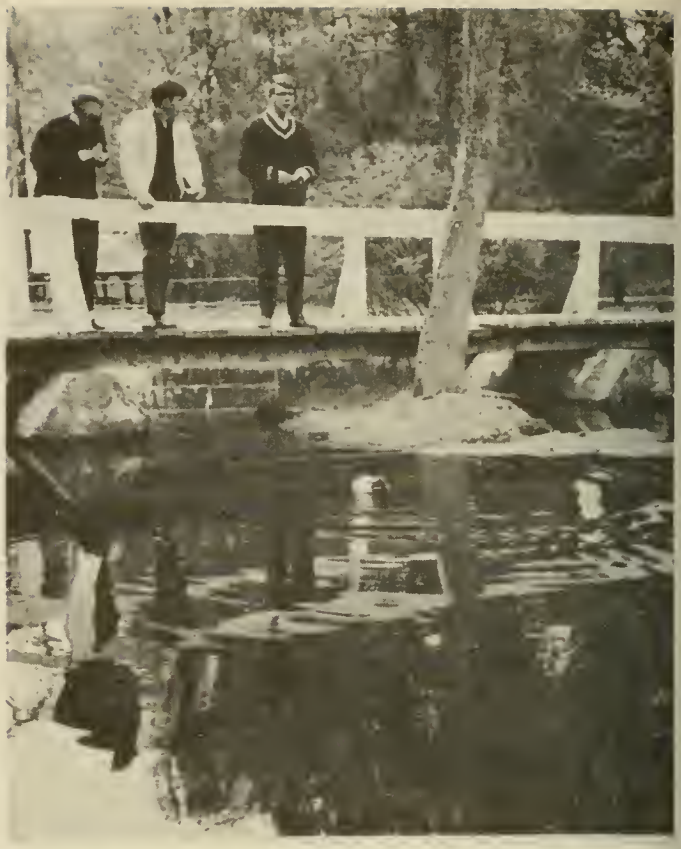
Northumberland County
- Line Mountain
- Warrior Run

Snyder County
- Selinsgrove Borough
- Mid-West

Sullivan County
- Sullivan County District

Tioga County
- Northern Tioga Area
- Southern Tioga Area
- Wellsboro Area

Union County
- Mifflinburg Area



A MESSAGE FROM THE PRESIDENT

Invariably, most college catalogs begin with a definitive statement of philosophy, purpose, and objectives. One seldom knows whether the stated philosophy and purpose is the product of one mind or the collective wisdom of the college community. Furthermore, it is usually difficult to ascertain exactly how purpose relates to process and performance. If you carefully examine the rest of the catalog, however, you will discover through rules, regulations, and programs of study the institution's real philosophical platform.

I hope that by reading this document you will get the feeling of an institution dedicated to human development and flexible enough to meet individual needs. I hope you also see our service and performance orientation. We are deeply committed to providing quality career education responsive to the needs of business and industry in North Central Pennsylvania. Therefore, we cannot remain stagnant or isolated, but must be dynamic and involved with the communities which support us. Portraying an evolving system of instruction and services at one point in time is a difficult mission.

Most college catalogs become dated rather quickly. These trapped words still can be viewed, however, as historical roadsigns pointing the direction of tomorrow's journey. This can be an exciting journey as we develop human potential and prepare for meaningful employment.

The Williamsport Area Community College is unique in that we serve both secondary and postsecondary career education needs. This bulletin relates to our postsecondary instructional services and programs. Any adult of any age may take advantage, on a full-time or part-time basis, of the variety of opportunities we provide in postsecondary education. We invite you to explore these opportunities with us.

William H. Feddersen
President

history

The Williamsport Area Community College, which now serves over 444,000 people in ten North Central Pennsylvania counties, plus students from other counties, states, and countries, was born in 1914 as a small industrial arts shop at the Williamsport High School. Woodworking and machine shop were the first courses offered.

Following World War I in 1920, retraining veterans, many of them disabled, led to the establishment of the first full-time adult day school in a downtown building. Courses were expanded to include patternmaking, automotive, and electric. An evening industrial school was started at the same time.

In 1927, to meet the demands for superviosrs in the rapidly increasing number of diversified industries in the area, the Williamsport School District and the Williamsport Chamber of Commerce co-sponsored evening conferences in foremanship training. This type of school and local industry effort, which saw 150 foreman from twenty plants take the advanced training, has continued throughout the institution's history. The goal has always been to meet both individual and industry needs.

During the Twenties a co-operative work-study industrial course for students over sixteen was begun. By 1929, forty-eight companies were employing students proficient in school shops for alternating periods of work and study.

During the Depression the cooperation between the school and local industry gained nationwide recognition for its efficient and effective attack on rising unemployment through the retraining of men to fill the increasing number of skilled trade positions in the local plants. The Williamsport Plan, which became known and was copied throughout the country, encompassed co-operative training of Civilian Conservation Corps and National Youth Administration young men. Many Works Progress Administration instructors participated in the program.

One example of innovation was a truck driver training course using borrowed trucks. The first of its kind in the nation, the course evolved into the present day safe driver course which is a part of many high school curriculums. In the heart of the Depression when other school districts were cutting budgets, such imaginative programs so impressed the community that it voted to build a new vocational building to meet the increased enrollment in the high school and adult programs.

On May 21, 1940, only eleven days after Holland and Belgium had been invaded, the school board appointed a special Emergency Training Commission to plan what part the school would play in the conflict which seemed certain to spread. At the end of the regular school term on June 14th. the staff and facilities were immediately shifted from training unemployed men and women to 24-hour a day defense industry training. The institution

was one of the first, if not the first, in the country to begin defense training.

By 1941 an astounding 6,500 adults were enrolled. The adult education program and the vocational high school program were merged into one unit known as the Williamsport Technical Institute. The separate programs of study were maintained.

Early in 1942 an intensified program for training handicapped persons for war production was started in co-operation with a local plant and the Pennsylvania Rehabilitation Service. This experience was later applied to anticipating the need to plan for similar training of veterans after the war. Thousands of veterans, many of them disabled, learned trades for post-war jobs using G.I. benefits and school scholarships provided in co-operation with local manufacturers.

Always striving to anticipate and fill area needs, in 1945 the Institute adopted the Watsontown Plan, forerunner of the area technical schools which have since spread throughout the state. In 1947 a job-training and safety program was begun to meet the needs of rural electric co-operatives in Pennsylvania.

Another first in the country was developed in 1951, the Vocational Diagnostic Program to provide a practical method of vocational counseling of rehabilitation clients and those with limited educational backgrounds. Individual clients and those from groups such as the United Mine Workers and the Pennsylvania State Council for the Blind have made extensive use of this unique program.

By 1953 the Williamsport Technical Institute's international reputation as an outstanding vocational center earned it official approval to train foreign students. Many foreign educators enrolled to study the methods of vocational education as a guide to establishing similar centers in their own countries.

In 1956 the Institute worked closely with the new Industrial Development Committee of the Williamsport Chamber of Commerce which was created to draw new industry to the city. A major factor in the relocation of several companies has been the availability of trained workers and the institution's ability to provide special courses to meet specific needs of these companies.

As a result of the passage of the Community College Act of 1963, studies were begun which led to the establishment of The Williamsport Area Community College. The Institute served as the base for the new institution which opened for classes on September 7, 1965. Students, faculty, staff, administration, and facilities all became a part of WACC. Since then, facilities have continued to be expanded and programs have been revised to keep pace with current needs.

During the 1973-74 academic year a major re-organization of the academic and administrative structure was begun to streamline the basic programs and institute modern management methods. The aim is to maintain WACC's historical mission of meeting constantly changing educational needs in the widespread community we serve, and be responsive to the needs of individuals.

admission

ADMISSIONS POLICY

The College operates under an open door admissions policy. This means that entrance examinations are not required for admission to the College but does not guarantee admission into a specific program or course. Admission is open without regard to age, national origin, race, religion, or sex.

In general, a high school diploma or its equivalent is necessary for a student to be admitted on a full-time basis. Adults without these credentials are also eligible for admission into a program appropriate to the aptitudes and abilities of the particular individual.

To implement this policy, the College offers a variety of programs and provides professional counseling to assist the applicant in selecting a program.

ADMISSION PROCEDURE

Full-Time and Part-Time Degree and Certificate Students

1. Obtain an application for admission by mailing one of the postcards at the back of this catalog, or by writing to:

   Admissions Office
   Williamsport Area Community College
   1005 West Third Street
   Williamsport, Pennsylvania 17701

   or by calling: (717) 326-3761 Extension 237 or 238.

2. Submit a completed application form along with a $10 application fee (non-refundable) to the Admissions Office.

3. Have your high school forward a transcript and recommendations to the Admissions Office.

4. An interview is not required before you submit an application. However, applicants may be asked to come to the College for an interview after submitting complete credentials. If, at any time, you need additional information or assistance, you can arrange for an interview by writing or calling the Admissions Office.

5. The American College Test (ACT) or the Scholastic Aptitude Test (SAT) will not be required for associate degree or certificate program applicants, except in cases where it is needed for counseling purposes.

6. Applicants who are accepted must submit a Health Form prior to registration.

Unclassified Students

A student who does not wish to pursue a degree or certificate program is not required to make a formal application for admission or to file credentials. Non-degree/non-certificate students enroll directly with the Assistant Director of Admissions & Records during the designated registration period. If, at a later date, an unclassified student desires to enroll in a degree or certificate program, an application for admission, together with other required credentials, must be submitted to the Admissions Office.

ADMISSION PREFERENCES

Preference for admission will be given to WACC sponsoring school district applicants whose applications have been received prior to February 1. It should be noted that most programs have sufficient space for all applying students, although exceptions in certain areas of study may occur from year to year.

EARLY ADMISSION POLICY

A student of exceptional ability who has completed the eleventh grade in an accredited high school may be enrolled as a full-time or part-time student at WACC in either a degree or certificate program during what would normally be the senior year in high school. To qualify for such early admission, the chief administrative officer of your high school must approve and submit the application, together with an official high school transcript, to the Admissions Office for determination of eligibility for the specific degree or certificate program desired. Upon satisfactory completion of your first year in a full-time college program, you can qualify for a regular high school diploma.

READMISSION

Former WACC students who wish to be readmitted should request a re-enrollment application from the Admissions Office.

TRANSFER STUDENTS

Students wishing to transfer to WACC should request an application from the Admissions Office. If you wish to transfer credit from another institution, you should have that college send an official transcript directly to the Records Office for evaluation. A maximum of Thirty (30) credit-hours may be transferred toward an associate degree. If you plan to graduate from WACC, the last semester must be completed here.

TUITION AND FEES

ADVANCED PLACEMENT AND CREDIT

Students who have completed advanced academic courses in high school and have passed appropriate placement examinations will be given advance placement consideration. A maximum of fifteen (15) credits can be acquired by such examinations.

We recognize skills-training received by students at Area Vocational Technical Schools. To verify the degree of skill a student has attained, the College may grant credit on the basis of grades earned at the AVTS or through special advanced placement exams. Up to the equivalent of two semesters of shop credit may be granted toward such advanced placement, thus shortening the time needed to complete the program.

VETERANS INFORMATION

The College has been approved by the Veterans Administration for the education and training of veterans.

Veterans desiring advance payment should file an application for advance payment with the College Records Office together with a copy (not the original) of your DD214. This should be filed approximately two months before enrolling. Veterans not desiring advance payment should follow the same procedure except they may file at the time of registration. Application forms are available at the Records Office or from the Veterans Affairs Office in your county.

VOCATIONAL DIAGNOSTIC PROGRAM

If you need help with career selection, you may take advantage of the three-week Vocational Diagnostic Program offered approximately eight times during the school year. This program is designed to assist you in career selection through aptitude testing, individual counseling, extensive vocational information, and actual job trials. This service is available to you whether or not you plan to attend the College. For fees and additional information write:

Vocational Diagnostic Program
The Williamsport Area Community College
Williamsport, Pa. 17701
or phone Williamsport (717) 326-3761, ext. 241

FULL–TIME STUDENTS

A full-time student is defined as someone enrolling in twelve or more credit-hours or an equivalent number of contact-hours per semester.

APPLICATION FEE

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $10 Application Fee with their application. You are required to pay this non-refundable fee only once. Applicants for the Practical Nursing program do not pay this fee.

TUITION DEPOSIT

All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied.

If you enroll at the designated time, the deposit will be credited toward your first semester's tuition.If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

TUITION AND RELATED FEES PER SEMESTER – 1974-75					
STUDENT'S RESIDENCE	Tuition	Service Fee	Activity Fee	Lab/Shop Fee	Total
WACC Sponsoring School District					
Full-Time	$245	–	$15	$15**	$275
Part-Time	$ 21*	–	–	$15**	–
Pennsylvania Sponsoring School District					
Full-Time	$245	$100	$15	$15**	$375
Part-Time	$ 21*	–	–	$15**	–
Pa. Non-Sponsoring School District					
Full-Time	$535	$100	$15	$15**	$665
Part-Time	$ 45*	$ 8.50	–	$15**	–
Out-of-State					
Full-Time	$735	$200	$15	$15**	$965
Part-Time	$ 61*	$ 17	–	$15**	–
*Per semester-hour of Credit or equivalent				**If applicable	

TUITION AND RELATED FEES

Tuition and related fees are governed by your area of residence. The four categories of residence are:

1. *WACC Sponsoring School District*
   If you reside in a school district which sponsors the Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship to be eligible for Sponsoring School District tuition rates. The form should be mailed to the Business Office after you have been accepted and as soon as possible prior to registration.

2. *Pennsylvania School District Sponsoring Another Community College*
   If you reside in a school district which sponsors another Pennsylvania Community College, you must obtain permission, IN WRITING, from the Board of Trustees of that particular institution to qualify for Sponsoring School District tuition and fees.

3. *Non-Sponsoring Pennsylvania School District*
   If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania Community College, you would pay Non-Sponsor tuition rates.

4. *Out-of-State Resident*

WITHDRAWALS AND REFUNDS

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application, service, and activity fees are not refundable.

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

First Week of Classes . . . . . 80% Refund
Second Week of Classes . . . . . 70% Refund
Third Week of Classes . . . . . 60% Refund
After Third Week of Classes . . . . . No Refund

BOOKS AND SUPPLIES

Expenses for books and supplies will vary considerably from program to program. College policy strives to keep your expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost can be as high as $100 per semester.

TOOLS

When you have been accepted for a particular program, the Admissions Office will provide you with an appropriate list of tools which will be used during your course of study. It is recommended that you do not buy any tools or protective clothing for any course before you attend the first class session. Tool costs vary greatly - from $10 the first semester for welding tools to $200 for construction technology equipment. Total first-year tool costs range from $15 for operating room technician students to $260 for construction students. It should be emphasized that these tools will be your personal property, an investment you will use with pride throughout your career.

MEN'S DORMITORY FEE

Room and board for men is $525 per semester. An additional $25 damage deposit is initially required the first time you register for a dormitory room. The deposit is refundable when you move out of the dormitory - if there are no damage charges outstanding on your record.

TRANSCRIPTS

There is a charge of $1.00 for each transcript of academic record requested by a student.

GRADUATION FEE

A graduation fee of $5.00 is assessed each student during the semester prior to graduation to cover the cost of a diploma or certificate.

Financial aid

Recognizing that the cost of education today is often more than the student and his family can afford without help, the Financial Aid Office offers a variety of aid programs:

Grants	Veteran's Benefits
Scholarships	Social Security Benefits
Loans	Vocational Rehabilitation Sponsorship
College Work-Study	Employment

Each student is encouraged to thoroughly explore the programs described below. Additional information about these programs is available through the Financial Aid Office.

GRANTS

Sometimes called "scholarships", these awards are based upon financial need rather than grades or class standing. Awards granted are not subject to later repayment.

Basic Educational Opportunity Grant (B.E.O.G.)

These awards are made to students entering post-high school education for the *first time* after April 1, 1973, and who will be enrolling on a full-time basis. Awards to financially eligible students will range from a minimum of $50.00 to a maximum of $1,050.00 for the 1974-75 year, with some increase expected for the 1975-76 year and beyond.

BEOG's are intended to be the "floor" of a financial aid package and may be combined with other forms of aid in order to meet your full cost of education. The amount of your BEOG is determined on the basis of your own and your family's financial resources.

Application for these awards must be submitted each year. They are available from high school guidance counselors or the WACC Financial Aid Office.

Pennsylvania Higher Education Grant

These awards are made to Pennsylvania residents who will be enrolled as full-time students in a two-year or longer program. Out-of-State residents should check with their guidance counselor for information about any grant program offered by their state.

Awards for WACC students ranged to a maximum of $460.00 for the 1973-74 year, with some increase possible for 1974-75 and beyond. Applications are available from your high school guidance counselor or the WACC Financial Aid Office.

SCHOLARSHIPS

Community Organizations and Union Locals

Many local organizations, such as unions, business concerns, Rotary and Kiwanis clubs, etc. participate in scholarship programs for students. Eligibility requirements vary, and often awards are limited to children of employees or members. Your high school counselor is usually a good source of information concerning local scholarship programs.

WACC Scholarships

Upon completion of at least two full semesters at WACC, students are eligible to apply for these scholarships. They are currently awarded on the basis of grades only.

LOANS

Pennsylvania Guaranteed Student Loan

Under this program, Pennsylvania residents enrolling in programs of six (6) months duration or more are eligible to borrow up to $2,000.00 per year for one through four years of education. Students may be enrolled on a half-time basis or more and be eligible to apply. Repayment does not begin until nine (9) months after the student has graduated or left school and may be extended over a period of up to ten (10) years.

Applicants for this loan should complete the WACC Financial Aid Application, and an application through their local bank.

Out-of-State residents should check with their guidance counselor about the loan program offered by their state.

WACC Student Loans

Once you have formally entered the College, you become eligible to apply for WACC Student Loans to meet emergency or unexpected expenses. The loans are short-term only (sixty days maximum repayment) and are interest free.

COLLEGE WORK STUDY (CWS) PROGRAM

Financially eligible students who are enrolled on a half-time basis or more may work in the College Work-Study program for college instructors and staff in a variety of jobs, such as library assistant, maintenance, cafeteria work, lab assistant, etc. For the 1973-74 year, eligible students could work up to twenty hours per week at a pay rate of $2.10 per hour. Both the number of hours per week and the pay rate may be increased for the 1974-75 year and beyond.

VETERAN'S BENEFITS

Veterans and veteran's survivors should contact either the WACC Program to Advance Veterans Education (PAVE) office or the Veteran's Administration for information about these benefits, which presently amount to $220.00 per month for single veterans with an increase possible in the near future.

SOCIAL SECURITY BENEFITS

These benefits may be available to any full-time student below the age of twenty-three in instances where one parent is disabled, retired, or deceased. Contact your local Social Security Office for Further information.

VOCATIONAL REHABILITATION SPONSORSHIP

Students having a disability (diabetes, asthma, hearing loss, amputation, etc.) should contact the nearest office of the Bureau of Vocational Rehabilitation to discuss possible sponsorship for some *or all* of their educational costs.

EMPLOYMENT

Students interested in obtaining either a part-time or summer job, and who are not eligible for or interested in College Work-Study employment, should register with the College Placement Office. In addition to helping students obtain such employment, the Placement Office assists in placing graduates.

ASSISTANCE WITH APPLICATIONS

Further information about all of the foregoing programs and help in completing aid applications is available all year by contacting the

Financial Aid Office
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylania 17701
(717) 326-3761 Extension 241

CAMPUS LIFE

The time you will spend outside the classroom will be an important part of your college life. You are encouraged to participate in the social, cultural, educational, vocational, and recreational activities which augment the instructional program.

ATHLETICS

We believe that a well-balanced program of intramural and intercollegiate sports plays an important role in the overall educational program.

At present, the College has basketball, wrestling, cross-country, golf, and tennis teams that compete on an intercollegiate level.

Intramurals provide an opportunity to participate in active competition to improve physical strength and skill, to pursue leisure time activities, and to develop friendships. The Physical Education staff conducts a variety of intramural athletic leagues for men and women. Activities include basketball, bowling, golf, handball, horseshoes, soccer, softball, table tennis, touch football, track and field, volleyball, wrestling, and others.

CHEERLEADING

This activity is under the direction of a faculty member. Announcements of tryouts are made each fall. Cheerleaders are selected on the basis of skill, poise, personality, and enthusiasm.

COLLEGE COLORS AND NICKNAME

The College colors, gold and burgundy, and the nickname, Wildcats, were selected by popular vote of the students.

CLUBS

New student clubs and organizations are constantly being formed. The following clubs are currently recognized on the WACC campus:

Alpha Phi Delta
Biology Club
Chi Gamma Iota (Veterans)
Cinema Club
Circle K Club (Kiwanis)
Computer Science Club
Food Service Student Organization
Forestry Technician Club

Frisbee Club
Gamma Epsilon Tau (Graphic Arts)
Horticulture Tech Association
International Relations Club
Married Students' Club
Mechanical Engineering Club
Northcentral Pennsylvania Chapter of the Construction Specifications Institute
Outing Club
Phi Beta Lambda (Business)
Photography Club
Student Government Association
Student PSEA-NEA
Tool Design Association
Varsity Club
Writers' Workshop
Yearbook Staff Unit
Young Democratic Club

PUBLICATIONS

The Spotlight is the official College newspaper published at regular intervals throughout the college year. Staff positions are open to all students.

Montage is the College yearbook which provides a pictorial account of the school year with a focus on the graduating class. Practical experience in writing, and editorial work is available through staff membership.

The Student Handbook is the College guide and directory which provides information on student events, regulations, and student services.

SOCIAL AND CULTURAL EVENTS

The Student Government Association sponsors dances, Fall and Spring Weekend events, plus other social and cultural events.

STUDENT GOVERNMENT

The Student Government Association is the student governing body of the College. Its purpose is to provide maximum opportunity through a democratic, representative organization for students to promote the interests of the students and of the College. It functions within a constitution originated by the students.

CAMPUS

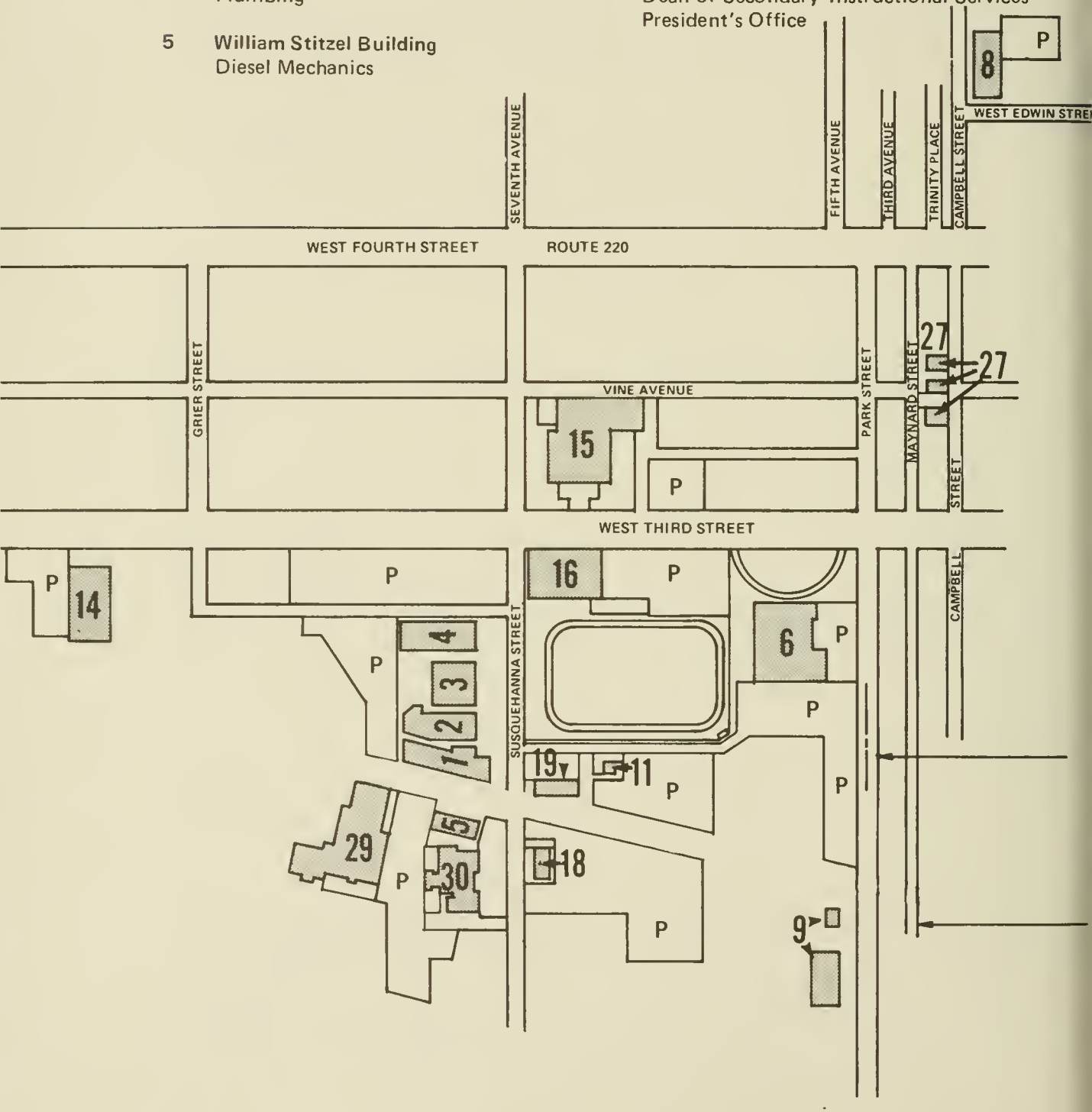
1 **Secondary Automotive Building**

2& **Electrical Building**
3 Electrical Technology
Electrical Construction
Welding

4 **Machine Shop Building**
Toolmaking Technology
Machinist - General
Plumbing

5 **William Stitzel Building**
Diesel Mechanics

6 **Administration Building**
Architectural Technology
Broadcasting
Electronics Technology
Engineering Drafting Tech.
Graphic Arts
Mechanical Drafting
Printing
Technical Illustration
Laboratories
Business Office
Dean of Secondary Instructional Services
President's Office



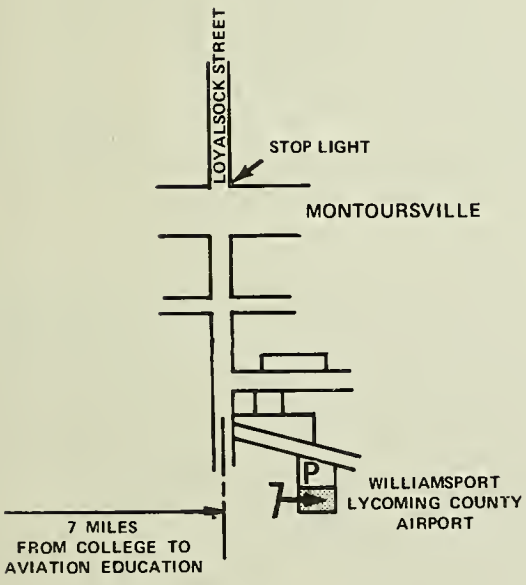
7 **WACC Hanger at Airport**
Aviation Technician

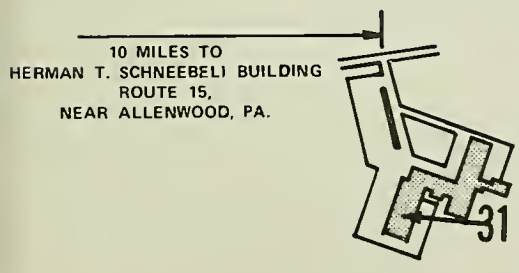
8 **Health Occupations & Office Machine Repairman Bldg.**
Operating Room Technician
Practical Nursing
Office Machine Repairman

9 **Crooks Maintenance Bldg.**

11 **Student Government House**
SGA Offices

14 **Rishel Building**
Developmental Studies
Learning Resources Center
Library Assistant
Sign Painting





15 **Klump Academic Center**
Accounting
Business Management
Computer Science Technology
Food & Hospitality Management
Journalism
Secretarial Science
Admissions & Records
Cafeteria
Classrooms
College Information
College Ombudsman
Community Services Center
Computer Center
Counseling
Dean of Postsecondary Instructional Services
Dean of Student Services
Dispensary
Financial Aid
Housing Office
Placement
Security (Parking, Lost & Found)
Spotlight
Student Activities
Veterans Office

16 **Lewis Bardo Gym**
Physical Education & Health

18 **Audio-Visual Services House**

19 **Lair**
Student-Faculty Center

27 **Hoover Dormitories**

29 **Cromar Building**
Carpentry
Carpentry & Building Construction Technology
Civil Engineering Technology
Sheet Metal
Bookstore

30 **George Parkes Building**
Auto Body Repairman
Automotive Mechanics
Automotive Technology

31 **Herman Schneebeli Building**
Floriculture
Forest Technology
Heavy Construction Equipment Service & Operation
Nursery Management

STUDENT SERVICES

COUNSELING SERVICES

Counselors are readily available to assist with any problem whether it be personal, social, academic, or vocational in nature.

Faculty Advisor - You will be assigned a faculty advisor to assist you in planning a program of studies and to help you with any curricular problems.

College Ombudsman - The College Ombudsman is available to assist students whose problems have not been resolved through normal channels.

INSURANCE

A student sickness and accident policy is available at nominal cost. Applications may be obtained at the dispensary.

ORIENTATION

New students are requested to participate in the orientation program which is designed to help them become familiar with the rules and regulations, customs, programs, and activities of the College and to answer any questions they may have.

PLACEMENT

Students or Alumni who are interested in obtaining full-time or part-time employment should register with the Placement Office.

Students or Alumni who are interested in transferring to other colleges should consult with the placement and the counseling staff.

HEALTH SERVICES

A dispensary, staffed by a registered nurse, is open Monday through Friday from 8 a.m. to 10 p.m. First aid, health counseling, and assistance in obtaining private health care is available. Costs for private health care are the student's responsibility.

HOUSING

Students are responsible for making their own housing arrangements. The Director of Housing is available for assistance and consultation. He maintains a list of available housing facilities for men and for women. The College does not sponsor, approve, disapprove, evaluate, or supervise the listed facilities. An agreement for renting is soely between the landlord and the person renting.

The College does offer rooming and boarding facilities which will accommodate 125 male students. Vacancies in these facilities are filled on the first-paid-in-full basis.

ACADEMIC INFORMATION

CLASSIFICATION OF STUDENTS

Full-Time: To be enrolled as a full-time degree or certificate candidate a student must carry a minimum of twelve credits or equivalent certificate hours per semester. Equivalent credit in a certificate program is derived by dividing the total hours per semester by thirty.

Part-Time: A degree or certificate candidate who carries less than twelve credits or equivalent certificate hours per semester is enrolled as a part-time student.

Unclassified: An unclassified student is one who does not go through the formal admissions process and therefore is not matriculated for a degree or a certificate. Such a student is permitted to select courses without regard to degree or certificate requirements.

Freshman: Students who have completed a total of fewer than thirty credits or the equivalent are classified as freshmen.

Sophomore: Students who have completed a total of thirty or more credits or the equivalent are classified as sophomores.

REGISTRATION

All students must register for desired courses each semester during the dates and in the manner prescribed by the College. If your registration is not completed, including payment of all required fees prior to the beginning of classes, you will not be permitted to attend class.

CREDIT AND SEMESTER-HOUR LOAD

The academic year is divided into two semesters of approximately sixteen weeks each. The normal load per semester is fifteen to eighteen semester-hours or the equivalent. Students should allow an average of at least two hours preparation for each semester-hour of course work.

A student may not enroll for more than eighteen semester-hours without special permission from the Dean.

CHANGE OF COURSE

A student may drop a course any time before the last two weeks of a semester by having his advisor complete an official "Request for Change of Course" form. A course dropped before the end of six weeks is recorded with a W grade. No credit is given for a W grade. A course dropped after the end of six weeks normally is a recorded grade of WF. A grade of WF affects a student's grade-point average in the same manner as an F. A course dropped after six weeks may be recorded as a W only upon recommendation of the instructor and the Dean.

A student may add courses during the first week of classes by having his advisor complete a "Request for Change of Course" form.

The approval of the appropriate division director(s) must be obtained before each change can be made.

REPEATING A COURSE

A student may repeat a course in which he has earned a grade of D or F. However, he must improve the grade on the repeated course to affect his cumulative grade-point average, in which case both grades will apear on his permanent record card with the higher grade used in calculating his cumulative grade-point average. If a student repeats a course and earns a second D or F, the second grade and credits will not be used in calculating his cumulative grade-point average. He will not be permitted to take the course a third time.

GRADING SYSTEM

The College uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade		Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	0
WF	Withdrawn Failing	0
I	Incomplete	0
AU	Audit	0

A grade reported as INCOMPLETE "I" at the end of a semester will be permanently recorded as an F if the incomplete is not removed within the following semester or if the student terminates prior to the end of that semester.

A student's grade-point average is computed by dividing the number of his

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Victorian Cities

grade points by the total number of credits or certificate hours for which he has earned a grade of A, B, C, D, F, or WF.

With the consent of the instructor and dean concerned, a student may enroll as an auditor in a non-laboratory course. Auditors are not required to take examinations and do not receive credit for the course.

CREDIT BY EXAMINATION

Students who have completed at least one semester at The Williamsport Area Community College may earn credit by examination and receive a grade. Application for such examination is made through the Dean's office. Approval must then be given by the appropriate division director and the Dean. If approval is received, a fee of $25.00 must be paid at the Business Office prior to each examination. The examination is taken at a time set by the division director. Presentation of the $25.00 receipt is the director's permission to administer the examination. Such examination may not be given to overcome a D or an F grade.

A maximum of fifteen credits may be earned by examination in addition to the fifteen credit maximum under Advanced Placement and Credit.

A passing grade from credit by examination will be recorded on the student's permanent record and will be used in determing the cumulative grade-point average. A grade of F will not be recorded on the permanent record. Faculty members may not assist any student to prepare for this type of examination.

PROGRESS REPORTS

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester. Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or the summer session.

THE DEAN'S HONOR LIST

The honor list is announced by the Dean at the completion of each semester. This list will include only those full-time students who have a grade-point average of 3.30 or better.

WITHDRAWAL FROM COLLEGE

If a student finds it necessary to withdraw from the College for any reason, he or she must:

1. Officially withdraw by reporting to the Counseling Center to obtain and complete the necessary withdrawal forms.
2. Satisfactorily account for all property issued by the College.
3. Settle all outstanding College obligations.

If a student does not officially withdraw from the College in the prescribed manner, he or she will receive the grade of WF in all courses.

STUDENT CONDUCT

On admission to The Williamsport Area Community College you accept an unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College, you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus is available in the Student Handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of or being under the influence of alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a grade of F. For a second offense, he may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

ATTENDANCE REGULATIONS

Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed by reason of absence, regardless of the cause, must be made up to the satisfaction of the instructor. A student who knows that he will be absent is expected to get assignments from his instructors in advance so that the necessary work will be completed before he leaves or immediately upon his return. This applies to absences for college activity trips as well as absences for other reasons. In all cases of anticipated absence, the student should confer with his instructor in advance whenever possible.

ACADEMIC PROBATION

Any degree or certificate candidate whose cumulative grade-point average is below 2.00 will be placed on academic probation. A student on probation will be required to report to the Counseling Center for special counseling

before being allowed to register for classes the following semester. A student may be dropped from the College unless he accumulates a grade-point average as follows:

Beginning of	Cumulative Grade-Point Average
Second Semester	1.50
Third Semester	1.80
Fourth Semester	1.90

Students are encouraged to seek consultation on academic matters with their advisor or a college counselor.

FINAL EXAMINATIONS

Final examinations are scheduled at designated times at the end of each semester. The schedule normally provides for an examination period for each course. A student who is absent from a final examination without good reason is subject to a failing grade.

GRADUATION REQUIREMENTS

1. The successful completion of a recommended two-year program of study at The Williamsport Area Community College leads to an Associate of Arts, an Associate of Applied Arts, or an Associate of Applied Science Degree.

To be eligible for an Associate degree from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this catalog. At least half of the hours, including the last semester, must be completed at the College.
b. Earn at least a C average (2.00 cumulative grade-point average).
c. Satisfy health and physical education requirements unless exempt.
d. Fulfill all financial obligations to the College.

2. Certificates will be awarded for the satisfactory completion of certain courses or the satisfactory completion of a series of courses designed for a specific purpose.

3. If, after completing your final semester, you lack some credits required for a degree or certificate, you may, with approval of the Dean, be permitted to take up to six semester credit hours from another college to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Only grades of C or better are acceptable for such transfer credit.

COMMUNITY SERVICES

Community service is one of the major functions of The Williamsport Area Community College. The Community Services Center is an integral part of the College, designed to extend the resources of the College to the community. Its purpose is: 1. to provide low-cost lifetime learning opportunities, cultural and personal enrichment, recreation and career training or up-grading for adults from the college community; 2. to provide special training, employee up-grading, or other educational programs on or off-campus designed to meet the needs of community organizations, professional associations, business, industry, institutions, prisons, and government agencies.

The Community Services Center, in addition to offering short, hourly mini-courses and career courses, provides special programs and services through workshops, lecturers, seminars, contract programs, consultations and conferences to meet the immediate needs of the communities we serve.

Some typical illustrations of the services available are: Manpower Training programs, prison, police, fire, in-plant training, special career programs; as well as the regular courses such as homemaking, business, computer science, general, recreational and cultural, technical and trade, personal development, and current issues and topics.

Information concerning course and program offerings is available prior to each term, or at the beginning of a new program.

Additional information is available through the Director of Community Services.

developmental study

Through Developmental Studies students can take basic courses which will help them successfully complete more advanced courses and will provide learning skills useful in all courses. Currently, developmental courses are available in basic algebra, basic English, and reading and study skills. These courses are useful for improving basic skills as well as improving motivation by dealing directly with negative thoughts which inhibit a student's learning potential.

Both the older adult who has been away from formal learning for a period of time and the recent high school graduate who experienced learning difficulties will benefit from Developmental Studies. A student can enroll simultaneously for developmental courses and courses in any program of study.

ASSOCIATE DEGREES

At the Williamsport Area Community College you can earn one of three Associate degrees. All of them can be used to help you gain immediate employment or to serve as the base from which you can pursue further studies. Flexibility is a common characteristic which allows each degree program to give you a maximum of freedom in meeting your individual needs.

The Associate of Arts in General Studies (AAGS) and the Associate of Arts in Individual Studies (AAIS) are degree programs primarily designed to parallel the first two years of work at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree at a senior college.

The Associate of Applied Science (AAS) degree program is not specifically designed for transfer. But, more and more senior colleges are accepting AAS degrees in full or partial transfer credit toward a bachelor's degree

ASSOCIATE OF ARTS IN GENERAL STUDIES REQUIREMENTS

The Associate of Arts in General Studies is usually the degree completed by students who wish to transfer to a four-year institution or senior college offering the last two years of study toward a four-year degree. The AAGS degree allows considerable flexibility in course selection for transfer of credits regardless of your field of concentration. It is strongly recommended that you contact the admissions office of the institution to which you wish to transfer for their recommendations in selecting your courses. You and your WACC advisor can then plan a tentative program at WACC that will be within the broad outline of the specific four-year degree in which you are interested.

The minimum requirements for the Associate of Arts in General Studies degree are:

	Credits
English/Humanities	9
Social Sciences	9
Mathematics	6
Natural Sciences	6-8
Physical Education & Health	4
	34-36
Electives (With suggested specialized concentration)	30
	64-66

Selection of courses within each category must observe the sequential nature of some courses. For example, English 101 and 102 are prerequisites for other English courses. Mathematics has a similar sequence. A 2.0 grade-point average is required for graduation.

ASSOCIATE OF ARTS IN INDIVIDUAL STUDIES REQUIREMENTS

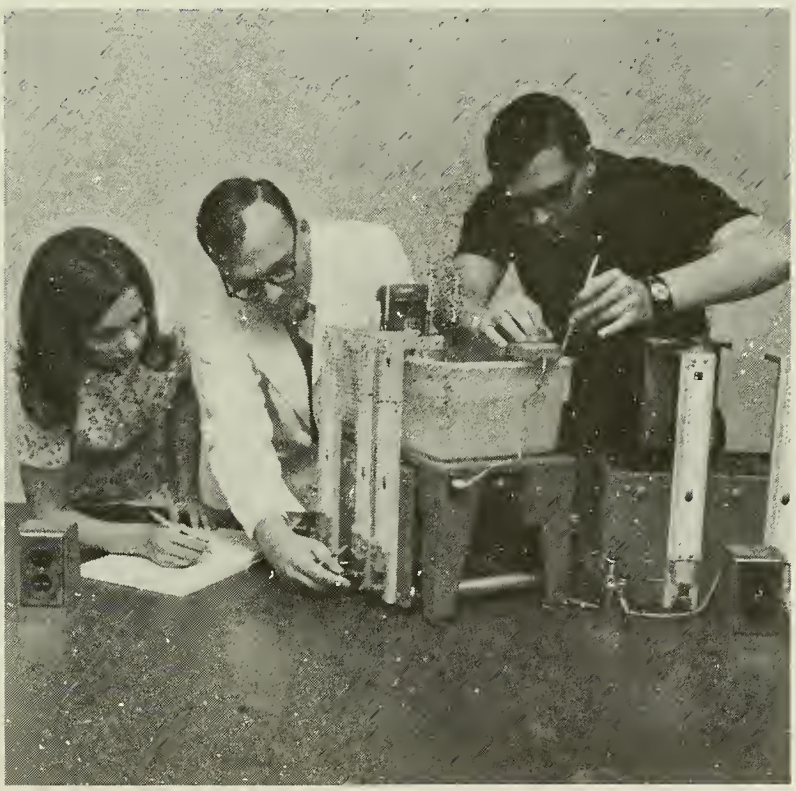
If you are not certain of your future goals, if you are interested in personal enrichment, if you wish to achieve a degree on a part-time basis, or if you are motivated by any combination of these ideas, the Associate of Arts in Individual Studies degree provides a maximum of flexibility. The degree is conferred upon successful completion of sixty (60) credits of associate degree level course work - fifteen (15) credits may be in Applied Science courses. A 2.0 grade-point average is required for graduation.

Full-time AAIS degree students are required to complete four credits of Physical Education and Health bringing the total required number of credits to sixty-four (64). Part-time students may be exempted from this requirement.

If later you should want to earn an Associate of Arts in a specific Program, you would only have to re-matriculate and complete the minimum number of courses required for that particular Program.

ASSOCIATE OF APPLIED SCIENCE REQUIREMENTS

If you know that you want to gain knowledge and proficiency in a particular vocational area, you can earn an Associate of Applied Science degree by taking the prescribed courses in that program. A 2.00 grade-point average must be maintained for graduation.



CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and are heavily skills oriented. They are not primarily designed for transfer but in certain cases can be to some colleges. Certificate programs require the equivalent of two to four semesters of full-time course work in which you must maintain a 2.0 grade-point average.

A new feature of these Certificate in Special Field of Study programs is the Optional Elective. As the name implies an Optional Elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

divisions and programs

BUILDING TECHNOLOGIES

Division Director, George C. Krause

Carpentry & Building Construction Technology (CB)
Construction Carpentry (CC)
Plumbing and Heating (PL)

BUSINESS & COMPUTER SCIENCE

Division Director, Donald B. Bergerstock

Accounting (BA)
Business Management (BM)
Clerk-Typist (BT)
Computer Operator (CO) (Fall 1975)
Computer Science Technology (CS)
Industrial Technology (IT)
Secretarial Science (BS):
- Executive
- Legal
- Medical

Service Courses (No Program)
- Business Administration

COMMUNICATIONS, HUMANITIES, & SOCIAL SCIENCES

Division Director, James E. Logue

Broadcasting (BR)
Journalism (JO)
Library Assistant (LS)

Service Courses (No Program)
- Economics
- Education
- English
- Government
- History
- Philosophy
- Psychology
- Sociology

EARTH SCIENCE

Division Director, Joseph G. Sick

Forest Technology (FR)
Heavy Construction Equipment Service and Operation (SO)
Ornamental Horitculture Technology (OH):
- Floriculture (FL)
- Nursery Management (NM)

ELECTRICAL/ELECTRONICS

Division Director, Donald O. Young, Sr.

Electrical Construction (EW)
Electrical Technology (EL)
Electronics Technology (ET)
Office Machine Repairman (OR)

ENGINEERING & DESIGN TECHNOLOGIES

Division Director, Paul L. McQuay

Architectural Technology (AT)
Civil Engineering Technology (CT)
Engineering Drafting Technology (ED)
Graphic Arts (GA)
Machinist General (MG)
Mechanical Drafting (MD)
Printing (GP)
Sheet Metal (SM)
Sign Painting (SP)
Technical Illustration (TI)
Tool Design Technology (TD)
Toolmaking Technology (TT)
Welding (WE)

PUBLIC SERVICE & HEALTH OCCUPATIONS

Division Director, Thomas E. Vargo

Dental Laboratory Technician (DL)
Food & Hospitality Managment (FH)
Operating Room Technicain (OT)
Practical Nursing (NU)
Radiologic Technology (RT)
Service Course (No Program)
- Physical Education & Health (PE)

SCIENCE & MATHEMATICS

Division Director, Dan C. Farris

Developmental Studies (LC)
Service Courses (No Programs)
- Biology
- Chemistry
- Environmental Science
- Geology
- Mathematics
- Physics
- Pre-Engineering

TRANSPORTATION TECHNOLOGIES

Division Director, John Hammond

- Auto Body Repairman (AB)
- Automotive Mechanics (AM)
- Automotive Technology (AU)
- Aviation Maintenance Technician (AC)
- Diesel Mechanics (DM)

PROGRAMS

building technologies

CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY (CB)

Associate Degree / Two Years

This program will provide you with the theoretical and technical aspects of light building construction. You will also explore principles and techniques of light-frame carpentry and masonry with emphasis on design, construction, cost estimation, and management.

Types of Jobs: Positions leading to foreman, building technician, or construction superintendent.

Required High School Subjects: Algebra and Geometry; one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
CB 10	Woodworking for Carpenters	4
CB 11	Construction Carpentry	4
MAT 103	College Algebra	3
ENG 11	Language and Composition I	
	or	3
ENG 101	English Composition I	3
PE	Physical Education	1
		15

SECOND SEMESTER		Credits
CB 24	Estimating and Blueprints	2
CB 25	Block Construction	6
MAT 104	Trigonometry	3
ENG 12	Language and Composition II	
	or	3
ENG 102	English Composition II	
PE	Physical Education	1
		15

THIRD SEMESTER		Credits
CB 30	Roof-framing Theory	3
CB 34	Brick Construction	5
EL 14	Electricity for the Trades	3
ECO 11	Basic Economics	
	or	3
ECO 201	Principles of Economics	
PHY 21	Physics - Mechanics	4
		18

FOURTH SEMESTER		Credits
CB 40	Advanced Carpentry	4
CB 42	Building Construction Tech	6
CB 44	Concrete Construction	3
CB	Elective - General*	3/4
		16/17

CONSTRUCTION CARPENTRY (CC)

Certificate / Two Years

Students enrolled in this program will receive laboratory instruction on the proper use of hand tools, portable power tools, portable power equipment, and become licensed in the use of power activated tools. Along with this, the necessary related classroom theory on methods, procedures, and materials will be given.

The major objective will be to parallel all instruction with situations and materials the student will encounter when entering the construction industry. This will include working on the actual construction of a residential building under surveillance of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities to journeyman, master, or foreman; also employment in plants or factories where building units, components, or building materials are made or sold.

FIRST SEMESTER

			Hours
CC	51	Concrete and Block (8 weeks)	200
CC	61	Brick and Stone (8 weeks)	200
MAT	10	General Math	48
ENG	01	Communications I	48
			496

SECOND SEMESTER

			Hours
CC	52	Framing and Sheeting (8 weeks)	200
CC	62	Exterior Finish (8 weeks)	200
AT	25	Basic Arch. Drafting	96
			496

THIRD SEMESTER

			Hours
CC	53	Interior Finish (8 weeks)	176
CC	63	Interior Trim (8 weeks)	176
CC	73	Blueprints and Specifications	48
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
CC	54	Specialty & Related Trades (8 weeks)	152
CC	64	Practical Construction Experience (8 weeks)	152
CC	74	Building Trades Estimating	48
CC	84	Personal & Job Orientation	48
		Optional Elective	0/48
			400/448

PLUMBING AND HEATING (PL)

Certificate / Two Years

You will be taught the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. The fundamentals of communications and mathematics will also be covered. You will be trained in all types of plumbing and heating repair work.

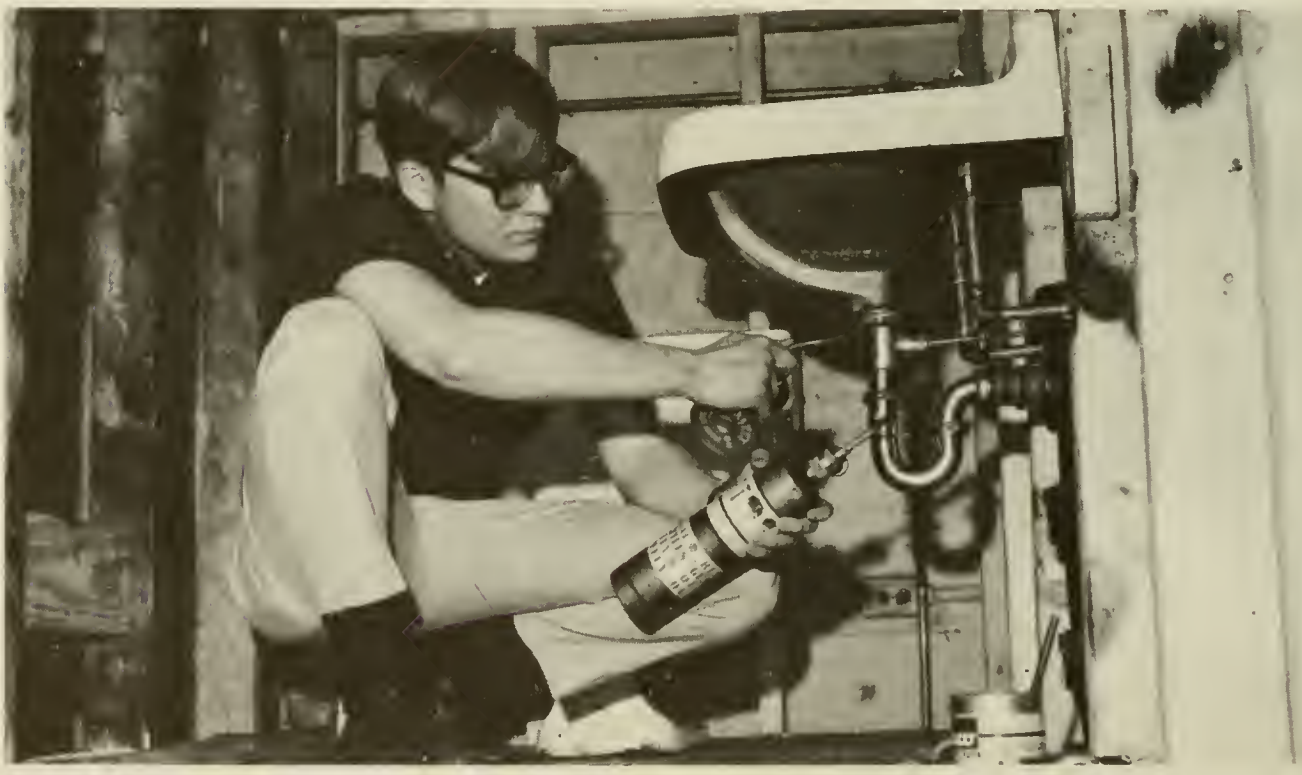
Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and ship building industries.

FIRST SEMESTER			Hours
PL	10	Plumbing and Heating I	192
PL	15	Plumbing and Heating II	192
MAT	10	General Mathematics	48
			432

SECOND SEMESTER			Hours
PL	20	Plumbing and Heating III	192
PL	21	Plumbing and Heating IV	192
ENG	01	Communications I	48
EL	14	Electricity for the Trades	80
			512

THIRD SEMESTER			Hours
PL	30	Plumbing and Heating V	192
PL	31	Plumbing and Heating VI	192
WE	01	Acetylene Welding	80
		Optional Elective	0/48
			464/512

FOURTH SEMESTER			Hours
PL	40	Plumbing and Heating VII	192
PL	41	Plumbing and Heating VIII	192
WE	02	Electric Welding	80
		Optional Elective	0/48
			464/512



business and computer science

ACCOUNTING (BA)

Associate Degree / Two Years

The accounting sequence is designed to give you a broad business background with specialization in accounting. Beginning on the elementary levels of accounting and business, you will advance into more complex stages.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

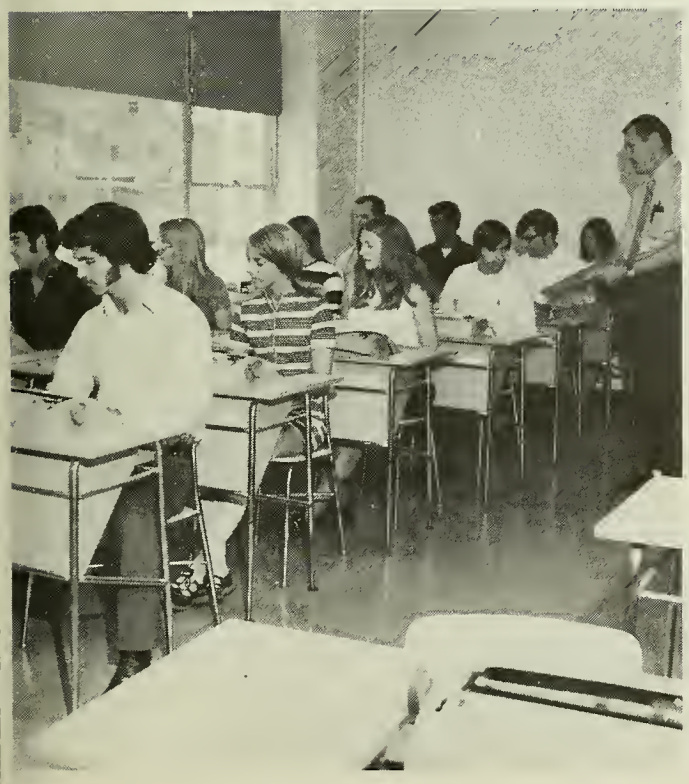
**GENERAL ELECTIVES are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
BA	12	Accounting I	3
BM	13	Principles of Business	3
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	Communications I	
PE		Physical Education	1
			16

SECOND SEMESTER			Credits
BA	22	Accounting II	3
BM	24	Office Procedures	2
BM	33	Business Organization and Management	3
CS	03	Intro. to Data Processing	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
			15

THIRD SEMESTER			Credits
BA	32	Intermediate Accounting I	3
BA	42	Cost Accounting	3
BM	31	Business Law I	3
CS	05	Business Computer Programming	3
BM	21	Business Communications	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
			18

FOURTH SEMESTER			Credits
BA	44	Intermediate Accounting II	3
BA	45	Income Tax Accounting	3
BM	41	Business Law II	3
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			15/16



BUSINESS MANAGEMENT (BM)

Associate Degree / Two Years

Executive or management positions are goals of the program sequence where you will gain basic business knowledge and study management theory and application procedures. Business concepts and implications for our economy will be covered.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government.

**GENERAL ELECTIVES are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
BA 12	Accounting I	3
BM 13	Principles of Business	3
BM 23	Business Mathematics	3
BS 15	Typewriting I	3
ENG 11	Language & Composition I	
	or	3
ENG 101	Communications I	
PE	Physical Education	1
		16

SECOND SEMESTER		Credits
BA 22	Accounting II	3
BM 24	Office Procedures	2
BM 33	Business Organization and Management	3
CS 03	Intro. to Data Processing	3
ENG 211	Fundamentals of Speech	3
PE	Physical Education	1
		15

THIRD SEMESTER		Credits
BM 31	Business Law I	3
BM 36	Marketing	3
CS 05	Business Computer Programming	3
BM 21	Business Communications	3
PSY 101	General Psychology	
or	or	3
SOC 101	Introduction to Sociology	
	Elective - General*	3/4
		18/19

FOURTH SEMESTER		Credits
BA 45	Income Tax Accounting	3
BM 41	Business Law II	3
BM 45	Finance	3
ECO 201	Principles of Economics	3
	Elective - General*	3/4
		15/16

CLERK-TYPIST (BT)

Certificate / One Year

The one year program is designed to give you fundamentals in typewriting and business machine calculation. You will master indexing principles, filing, and basic office procedures.

Types of Jobs: Clerk-typist, business machine operator, filing, general clerical, elementary accounting work, shorthand transcription.

FIRST SEMESTER		Hours
BM 14	Office Machines	64
BS 15	Typewriting I	80
BS 17	Clerical Procedures	160
ENG 01	Communications I	48
		352

SECOND SEMESTER		Hours
BM 21	Business Communications	48
BM 23	Business Mathematics	48
BS 27	Clerical Workshop	176
BS 21	Typewriting II	80
		352

COMPUTER OPERATOR (CO)

Certificate / One Year Starts Fall 1975

This program is designed to train the student in all aspects of data processing operations and the effective and productive utilization of the equipment. The student will be prepared for entry into industry as a qualified computer operator and related technician. This program provides an option for those students who have an interest and aptitude for a data processing career, but do not desire to be programmers.

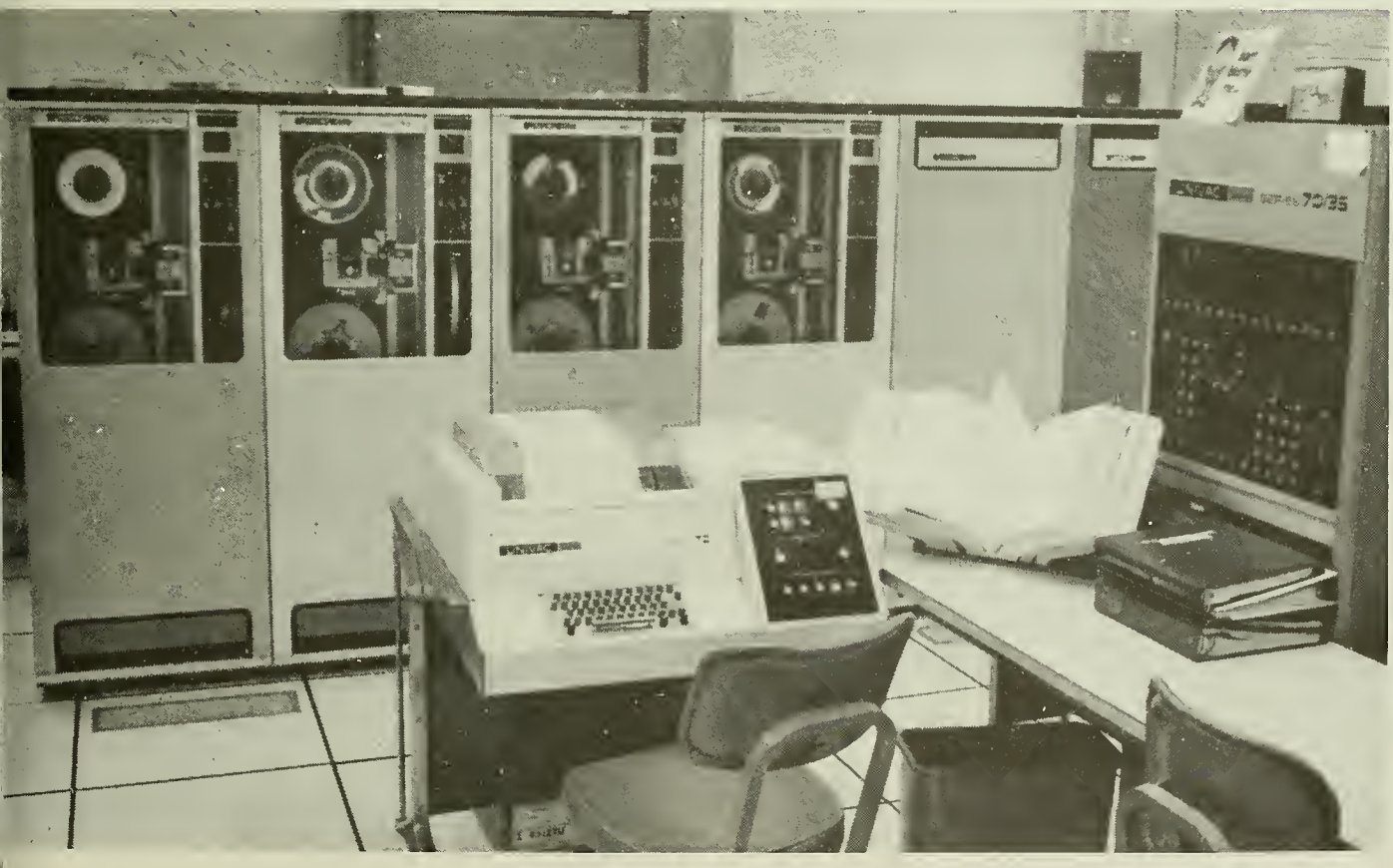
Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives.

FIRST SEMESTER

			Credits	Hours
CO	10	Basic Computer Operations	4	96
CO	11	Computer Operations Internship I	2	96
CS	18	Fundamentals of Computer Science	3	48
BA	12	Accounting I	3	48
BS	09	Typewriting	1	48
ENG	11	Language & Composition I	3	48
			16	384

SECOND SEMESTER

			Credits	Hours
CO	20	Advanced Computer Operations	4	64
CO	21	Computer Operations Internship II	2	96
CO	22	Computer Technology	3	48
CS	20	Support Systems	3	48
BM	24	Office Procedures	2	64
ENG	13	Technical Writing	3	48
			17	368



COMPUTER SCIENCE TECHNOLOGY (CS)

Association Degree / Two Years

Designed to train you in the fields of computing systems and electronic data processing. The program provides a broad and thorough knowledge of programming techniques and experience in operation of computer systems and peripheral data processing equipment. The curriculum offers a strong secondary background in business accounting and management or math and science.

Types of Jobs: Computer programmer, junior systems analyst, sales representative, related technician.

High School Subjects Required: Two units of mathematics including Algebra.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
CS	18	Fundamentals of Computer Science	3
CS	19	Compiler Language I-Fortran	3
BA	12	Accounting I	3
ENG	11	Language & Composition I	3
MAT	100	Fundamentals of Math I	3
PE		Physical Education	1
			16

SECOND SEMESTER

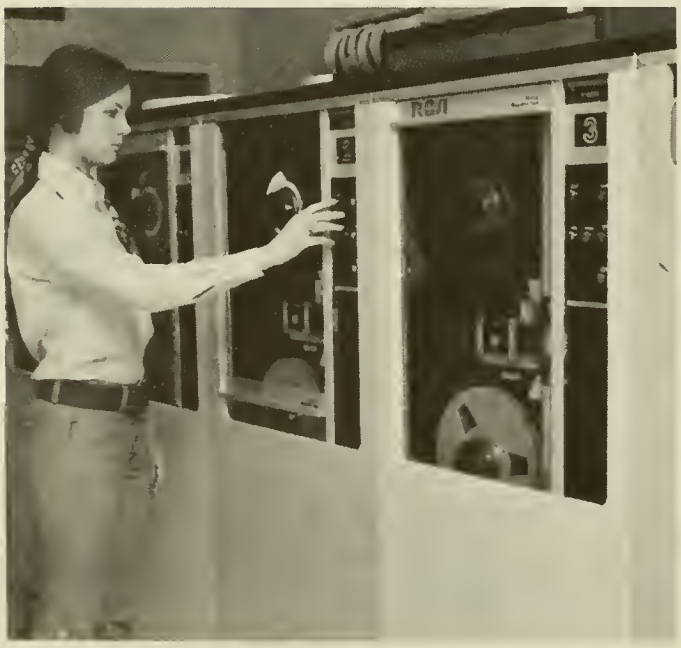
			Credits
CS	20	Support Systems	3
CS	27	Assembler Language I	4
ENG	12	Language & Composition II	3
MAT	200	Fundamentals of Math II	3
		Elective - Math/Science or Elective - Business	3/4
PE		Physical Education	1
			17/18

THIRD SEMESTER

			Credits
CS	33	Systems Development and Applications I	3
CS	35	Compiler Language II-COBOL	4
CS	37	Assembler Language II	4
MAT	201	Statistical Analysis I or	3
MAT	203	Elementary Statistics	
		Elective - Math/Science or Elective - Business	3/4
			17/18

FOURTH SEMESTER

			Credits
CS	41	Data Management	3
CS	42	Numerical Programming Methods	3
CS	43	Systems Development and Applications II	3
		Elective - Math/Science or Elective - Business	3/4
		Elective - General*	3/4
			15/17



INDUSTRIAL TECHNOLOGY (IT)

This program is especially geared to the employed person who wishes to upgrade himself, either for personal or professional reasons, by earning the Associate Degree in his area of interest. Emphasis is placed on communication skills, mathematics, business, the sciences, and other specialized areas required in today's modern industries.

The program is open to anyone, whether they are desirous of attaining a degree or not. The procedure for enrolling in the respective courses for this program is the same as that for any other program in the college. Upon completion of forty-five credits, a student must make formal application as a candidate for an Associate Degree in Industrial Technology. A minimum of sixty credits is required to qualify for the Associate Degree, of which, up to thirty applicable credits may be transferred from other colleges.

MATHEMATICS - 9 CREDITS SELECTED FROM:

MAT 100 Fundamentals of Mathematics I
MAT 103 College Algebra
MAT 104 Trigonometry
MAT 112 Calculus I
MAT 200 Fundamentals of Mathematics II
MAT 201 Statistical Analysis I

LABORATORY SCIENCES - 6 CREDITS SELECTED FROM:

CHE 111 General Chemistry I
CHE 112 General Chemistry II
PHY 21 Physics - Mechanics
PHY 31 Physics - Electricity and Magnetism
PHY 33 Physics - Heat and Light

ENGLISH AND HUMANITIES - 6 CREDITS SELECTED FROM:

ENG 11 Language and Composition I
ENG 12 Language and Composition II
ENG 13 Technical Writing
ENG 211 Fundamentals of Speech

SOCIAL SCIENCES - 12 CREDITS SELECTED FROM:

ECO 11 Basic Economics
GOV 201 American Government - National
GOV 202 State and Local Government
PSY 101 General Psychology
PHL 101 Introduction to Philosophical Analysis
SOC 101 Introduction to Sociology
HIS 201 United States - Survey I

INDUSTRIAL & MANAGEMENT COURSES - 27 CREDITS SELECTED FROM:

CSC 101 Introduction to Computer Science
BA 12 Accounting I
BA 22 Accounting II
BM 33 Business Organization and Management
BM 36 Marketing
BM 31 Business Law I
IM 40 Work Simplifications - Time Study and Incentives
IM 20 Industrial Organization and Management
IM 31 Supervision - Human Relations
IM 41 Industrial and Public Relations
IM 44 Industrial Safety
IM 47 Industrial Psychology
BM 35 Business Psychology
IT 12 Labor - Management Relations
IT 13 Blueprint Reading & Sketching
IT 20 Basic Drafting and Tool Design
IT 21 AC-DC Theory
IT 22 Electronics
IM 14 Mathematical Calculations - Slide Rule
EL 48 or CB 24 - Blueprint Reading
ED 10 Basic Drafting
EL 36 Basic Electronics
Toolmaking Technology Elective

Other academic courses may be included or substituted with the approval of the instructor. Course descriptions of specialized IM and IT courses are available in the Dean's Office.

SECRETARIAL SCIENCE (BS) - EXECUTIVE

Associate Degree / Two Years

The program is designed to give you proficiency in executive secretarial skills with a background in liberal studies.

Types of Jobs: Business office in commerce, government, industry, or the professions.

**GENERAL ELECTIVES are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
BS	14	Shorthand I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	Communications I	
PE		Physical Education	1
			18

SECOND SEMESTER

			Credits
BS	21	Typewriting II	3
BS	23	Office Practice	2
BS	24	Shorthand II	3
ENG	211	Fundamentals of Speech	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BM	13	Principles of Business	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	7
BM	21	Business Communications	3
			16

FOURTH SEMESTER

			Credits
BM	33	Business Organization and Management	3
BS	44	Secretarial Workshop	9
BS	45	Office Internship	1
		Elective - General*	3/4
			16/17

SECRETARIAL SCIENCE (BS) - LEGAL

Associate Degree / Two Years

The program is designed to give you proficiency in legal secretarial skills with a background in liberal studies.

Types of Jobs: Business, commerce, and law.

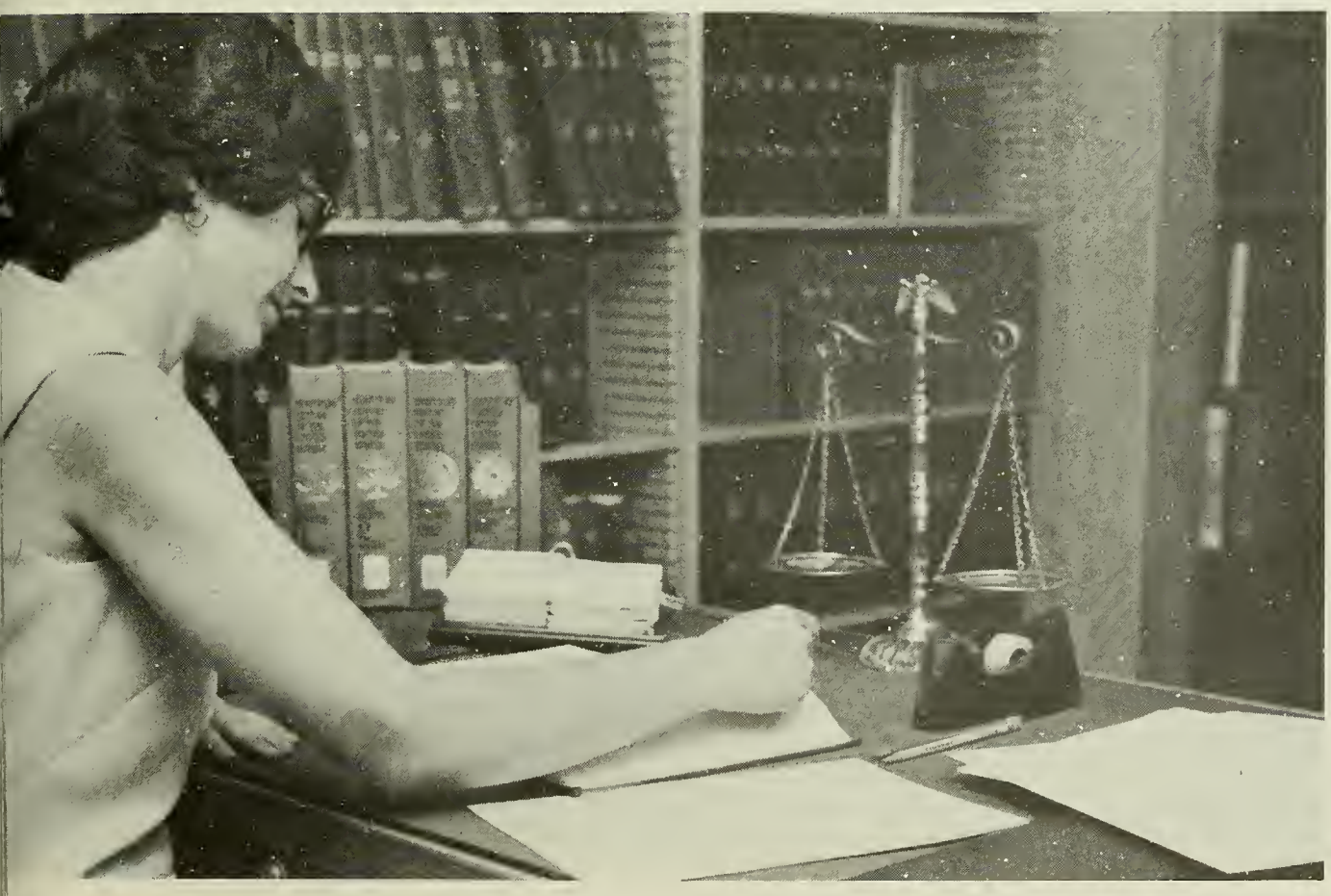
**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
BA	11	Elementary Accounting	3
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
BS	14	Shorthand I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	Communications I	
PE		Physical Education	1
			18

SECOND SEMESTER			Credits
BS	21	Typewriting II	3
BS	23	Office Practice	2
BS	24	Shorthand II	3
ENG	211	Fundamentals of Speech	3
PSY	101	General Psychology	
		or	3
SOC	101	Introduction to Sociology	
PE		Physical Education	1
			15

THIRD SEMESTER			Credits
BM	31	Business Law I	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	7
BM	21	Business Communications	3
			16

FOURTH SEMESTER			Credits
BM	41	Business Law II	3
BS	44	Secretarial Workshop	9
BS	45	Office Internship	1
		Elective - General*	3/4
			16/17



SECRETARIAL SCIENCE (BS) - MEDICAL

Associate Degree / Two Years

The program is designed to give proficiency in medical secretarial skills with a background in liberal arts.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.

FIRST SEMESTER		Credits
BA 11	Elementary Accounting	3
BM 14	Office Machines	2
BM 23	Business Mathematics	3
BS 15	Typewriting I	3
BS 14	Shorthand I	3
ENG 11	Language & Composition I	
	or	3
ENG 101	Communications I	
PE	Physical Education	1
		18

SECOND SEMESTER		Credits
BS 21	Typewriting II	3
BS 23	Office Practice	2
BS 24	Shorthand II	3
ENG 211	Fundamentals of Speech	3
BIO 25	Anatomy and Physiology	3
PE Phys	Physical Education	1
		15

THIRD SEMESTER		Credits
BS 31	Typewriting III	3
BS 34	Shorthand Workshop	7
BM 21	Business Communications	3
ST 30	Medical Terminology	3
		16

FOURTH SEMESTER		Credits
BS 44	Secretarial Workshop	9
PSY 101	General Psychology	
	or	3
SOC 101	Introduction to Sociology	
BS 45	Office Internship	1
	Elective - General *	3/4
		16/17

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCES

BROADCASTING (BR)

Associate Degree / Two Years

Announcers and newsmen from nearby radio stations will assist the faculty to teach you modern broadcasting techniques using the College's radio studio and television system. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
BS	15	Typewriting I	3
BR	10	Introduction to Announcing	3
ENG	101	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government-National	3
			15

SECOND SEMESTER			Credits
BR	16	Newswriting for Broadcasters	3
BR	17	Basic Electronics & FCC Licensing	3
BR	21	In-Service Training I	2
GOV	202	State & Local Government	3
SOC	101	Introduction to Sociology	3
PE		Physical Education	1
			15

THIRD SEMESTER			Credits
BR	18	Advanced Announcing	3
BR	19	Radio Programming	3
BR	22	In-Service Training II	2
ECO	11	Basic Economics	3
PE		Physical Education	1
		Elective-General*	3
			15

FOURTH SEMESTER			Credits
BR	14	Station Management & Community Responsibility	3
BR	23	In-Service Training III	2
BR	20	Broadcast Advertising	3
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
		Elective-General*	3
			17

JOURNALISM (JO)

Assoicate Degree / Two Years

Practical courses in news and feature story writing, news photography, editing, copy writing, and community responsibility are taught with the help of area newsmen. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Newspaper reporter, advertising copywriter, public relations assistant, news photographer, magazine research assistant.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
BS	15	Typewriting I	3
JO	10	News Writing	3
ENG	101	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government National	3
			15

SECOND SEMESTER

			Credits
JO	11	Photography for Newsmen	2
JO	12	News Reporting	3
JO	21	In-Service Training I	2
GOV	202	State & Local Government	3
		Elective-General*	3
SOC	101	Introduction to Sociology	3
			16

THIRD SEMESTER

			Credits
JO	13	Feature Writing	3
JO	14	Editing	3
JO	22	In-Service Training II	2
ECO	201	Principles of Economics	3
PE		Physical Education	1
		Elective - General*	3/4
			15/16

FOURTH SEMESTER

			Credits
JO	16	Newspaper Management and Community Responsibility	3
JO	23	In-Service Training III	2
JO	30	Advertising	3
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
PE		Physical Education	1
		Elective - General*	3/4
			18/19

LIBRARY ASSISTANT (LS)

Associate Degree / Two Years

You will acquire specialized knowledge through technical courses and gain practical experience in library work through the internship program. Liberal arts courses will help to broaden your background to better understand and serve the needs of future library patrons.

Types of Jobs: Positions in public and special libraries, schools, colleges, industrial and commercial libraries.

Required High School Subjects: One year of math, one year of science.

**GENERAL ELECTIVES are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
LS 10	Intro. to Books and Libraries	3
LS 15	Technical Services I	3
BS 15	Typewriting I	3
ENG 101	English Composition I	3
CS 03	Intro. to Data Processing	3
		15

SECOND SEMESTER		Credits
LS 30	Technical Services II	3
LS 31	Aids and Principles of Book Selection	3
ENG 102	English Composition II	3
HIS 104	Western Civilization II	3
PSY 101	General Psychology	3
		15

THIRD SEMESTER		Credits
LS 12	Internship	3
LS 41	Introduction to Reference	3
EDU 102	Children's and Young Adult Literature	3
ENG 252	World Literature	3
PE	Physical Education	1
	Elective in Math or Science	3/4
	Elective in Social Science	3
		19/20

FOURTH SEMESTER		Credits
LS 45	Audio-Visual Materials, Cataloging and Classification	3
LS 44	The Library: Its Patrons and Purpose	3
ENG 211	Fundamentals of Speech	3
PE	Physical Education	1
	Elective - General*	3/4
		13/14

EARTH SCIENCE

FOREST TECHNOLOGY (FR)

Associate Degree / Two Years

Academic courses are compined with applied and specialized forestry courses to prepare you for responsible positions in many types of forestry work. Basic forestry techniques and activities taught the first year are extended during the second. Field work is an important part of the course of instruction.

Types of Jobs: In public agencies - Forest fire control; wildlife habitat improvement; maintenance of forest roads, structures, and recreation areas; timber estimating and marking; stand improvement. In private business - Pulpwood or sanitimber procurement, timber estimating, planning and construction of forest roads, supervision of logging operations, location and survey of forest property lines.

Required High School Subjects: Algebra and Geometry, one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
FR 11	Dendrology	3
FR 13	Forest Mensuration	3
FR 15	Forest Botany	3
ENG 11	Language and Composition I	
	or	3
ENG 101	English Composition I	
MAT 103	College Algebra	3
PE	Physical Education	1
		16

SECOND SEMESTER		Credits
FR 21	Photogrammetry & Forest Surveying I	3
FR 26	Forest Ecology/ Wildlife Management	3
FR 28	Advanced Forest Mensuration	3
ENG 12	Language and Composition II	
	or	3
ENG 102	English Composition II	
MAT 104	Trigonometry	3
PE	Physical Education	1
		16

THIRD SEMESTER		Credits
BM 13	Principles of Business	3
FR 32	Forest Surveying II	3
FR 33	Equipment and Machinery	3
FR 36	Timber Harvesting	3
FR 46	Silviculture	3
		15

FOURTH SEMESTER		Credits
FR 38	Forest Protection	3
FR 42	Forest Products	3
FR 48	Forest Land Management & Recreation	3
ECO 11	Basic Economics	
	or	3
ECO 201	Principles of Economics	
	Elective - General*	3/4
		15/16

HEAVY CONSTRUCTION EQUIPMENT
SERVICE AND OPERATION (SO)

Certificate / Two Years

You will be prepared to operate, service, and repair most types of construction machinery and become proficient in one or two of them. Basic surveying and complete mechanical safety measures are included in your program.

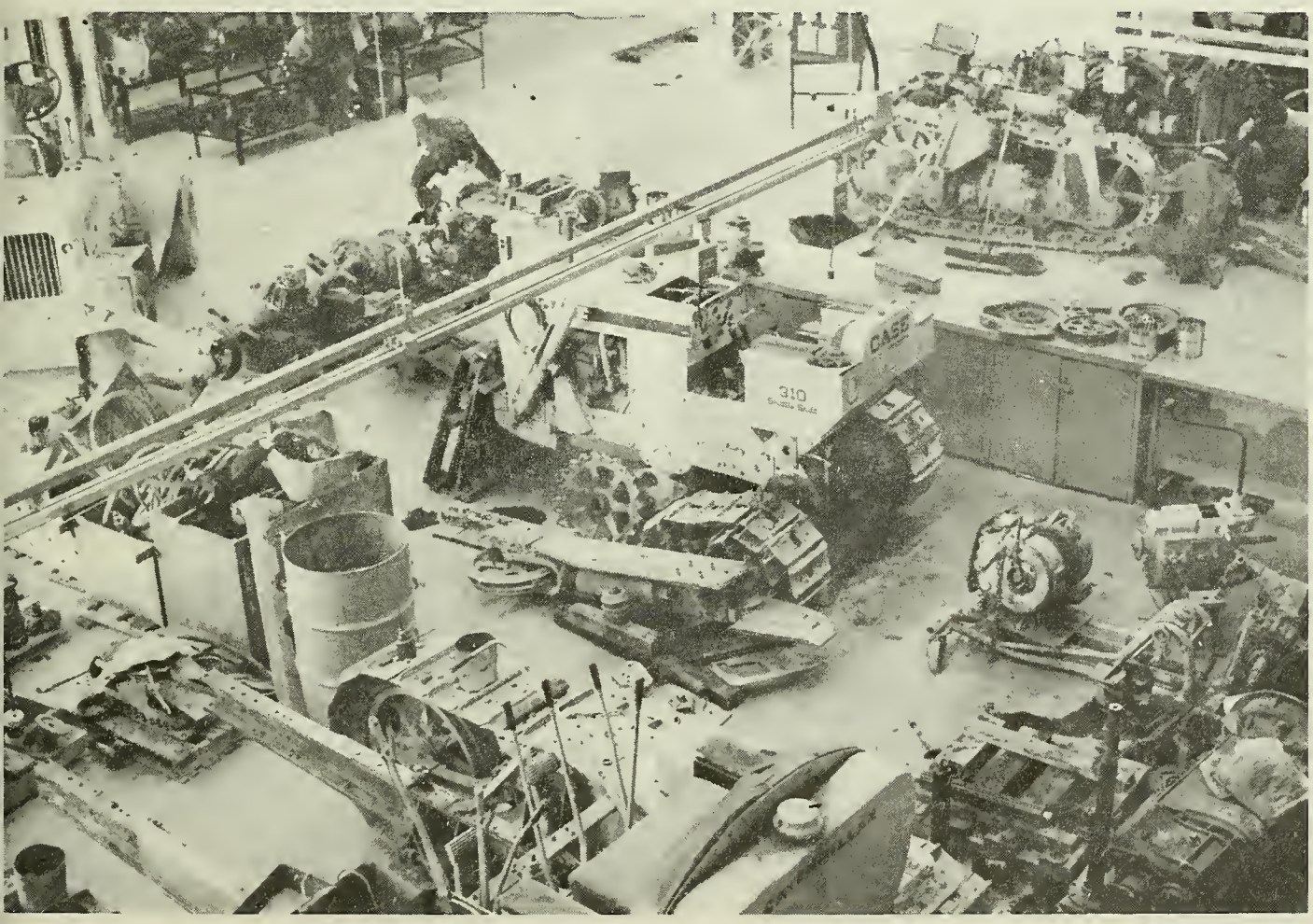
Types of Jobs: Operation, mechanical repair, and service of heavy construction equipment. Self-employed or work with contractors, dealers, miners, and quarriers.

FIRST SEMESTER		Hours
SO 11	Heavy Construction Equipment I	216
SO 12	Heavy Construction Equipment II	216
MAT 10	General Mathematics	48
		480

SECOND SEMESTER		Hours
SO 23	Heavy Construction Equipment III	192
SO 24	Heavy Construction Equipment IV	192
ENG 01	Communications	48
	Optional Elective	0/48
		432/480

THIRD SEMESTER		Hours
SO 35	Heavy Construction Equipment V	216
SO 36	Heavy Construction Equipment VI	216
	Optional Elective	0/48
		432/480

FOURTH SEMESTER		Hours
SO 43	Heavy Construction Equipment VII	240
SO 44	Heavy Construction Equipment VIII	240
		480



ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
FLORICULTURE (FL)

Associate Degree / Two Years

The production, grading, arranging, distribution, and marketing of indoor and outdoor flowers and plants is studied. An understanding of flower culture and modern merchandising is developed through the study of soils, plant propagation, plant insects and diseases, woody and herbaceous plants, greenhouse crop production, and horticulture mechanics along with floral design, flower shop operation, business psychology, marketing, and economics.

Types of Jobs: Flower propagation, retail and wholesale flower sales, flower shop management, assisting in plant pathology, self employment.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
BIO	03	Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	11	Basic Algebra	3
OH	11	Horticulture Soils	3
OH	12	Woody Plants I	2
OH	13	Herbaceous Plants	3
			17

SECOND SEMESTER			Credits
CHE	11	Fund. of Chemistry	
		or	4
CHE	112	General Chemistry II	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
OH	20	Greenhouse Crop Production I	3
OH	30	Floral Design I	3
PE		Physical Education	1
			14

THIRD SEMESTER			Credits
OH	39	Floral Design II	3
OH	31	Greenhouse Crop Production II	3
OH	37	Plant Insects and Diseases	3
OH	24	Plant Propagation	3
PE		Physical Education	1
		Elective - General*	3/4
			16/17

FOURTH SEMESTER			Credits
OH	43	Flower Shop Operation	3
OH	41	Greenhouse Crop Production III	3
OH	46	Horticulture Mechanics	3
OH	33	House & Conservatory Plants	3
		Elective - General*	3/4
			15/16

ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
NURSERY MANAGEMENT (NM)

Associate Degree / Two Years

Studying ornamental plant production and sales you will learn to propagate, grow to commercial size, and profitably sell the many species and varieties of woody plants. Learning the fundamentals of horticulture science will enable you to identify commercially important plants and to design, construct, and maintain landscape plans and features.

Types of Jobs: Growing trees and shrubs at a private nursery, nursery stock salesman or buyer, horticulturist with a government agency (city, county, state, or federal) landscaping, or your own business.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
BIO 03	Botany	3
ENG 11	Language & Composition I	
	or	3
ENG 101	English Composition I	
MAT 11	Basic Algebra	3
OH 11	Horticulture Soils	3
OH 12	Woody Plants I	2
OH 13	Herbaceous Plants	3
		17

SECOND SEMESTER		Credits
CHE 11	Fundamentals of Chemistry	
	or	4
CHE 112	General Chemistry II	
ENG 12	Language & Composition II	
	or	3
ENG 102	English Composition II	
OH 21	Nursery Production I	3
OH 26	Woody Plants II	3
PE	Physical Education	1
		14

THIRD SEMESTER		Credits
OH 37	Plant Insects and Diseases	3
OH 35	Nursery Production II	3
OH 42	Woody Plants III	3
OH 24	Plant Propagation	3
PE	Physical Education	1
	Elective - General*	3/4
		16/17

FOURTH SEMESTER		Credits
OH 45	Landscape Construction	3
OH 46	Horticulture Mechanics	3
OH 49	Landscape Design	3
OH 48	Landscape Maintenance	3
	Elective - General*	3/4
		15/16

electrical/electronics

ELECTRICAL CONSTRUCTION (EW)

Certificate / Two Years

If you have the desire and aptitudes to work in the electrical trades but do not want to get involved in the more theoretical aspects of them, this is the program for you. Some mathematics, science, and communications skills will be studied, but stress is placed on manual skills which you will need to install wiring and electrical equipment in buildings using blueprints.

Types of Jobs: Electrical construction union apprentice, industrial maintenance and construction, self-employed in residential and commercial wiring and in electrical shops, electrical tester or inspector, power company employee.

FIRST SEMESTER

			Hours
EL	12	Basic Wiring Lab	96
EW	11	Direct Current Fundamentals	160
EW	18	Motor Rewinding I	96
MAT	10	General Mathematics	48
ENG	01	Communications I	48
			448

SECOND SEMESTER

			Hours
EW	21	Alternating Current Fund.	160
EW	24	Basic Motor Control	96
EW	35	Residential Blueprint and Code	64
MAT	20	Algebra	48
EL	18	Accident Prevention	32
		Optional Elective	0/48
			400/448

THIRD SEMESTER

			Hours
EW	31	Basic Electrical Construction Lab	112
EW	39	Basic Electronics for Industry	160
EW	37	Advanced Motor Control	96
PHY	20	Physics Survey	48
ED	02	Engineering Drafting	64
			480

FOURTH SEMESTER

			Hours
EW	41	Commercial & Industrial Blueprint Reading	64
EW	42	Industrial Motor Control	96
EW	44	Advanced Electrical Construct.	144
EW	49	Electrical Machinery, Analysis and Repair	128
		Optional Elective	0/48
			432/480

ELECTRICAL TECHNOLOGY (EL)

Associate Degree / Two Years

As an electrical technologist, you will be working with electronics equipment or electrical machinery. Your degree program will stress electrical basics including theory, circuits, industrial electronics, electrical machinery, and electrical construction. Courses in mathematics, science, and communications will enhance your vocational opportunities.

Types of Jobs: Electrical technology and laboratory work, industrial maintenance technician, trouble shooter for electrical equipment manufacturers.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
EL	15	Direct Current Fundamentals	5
EL	16	Basic Wiring Lab	3
EL	18	Accident Prevention	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

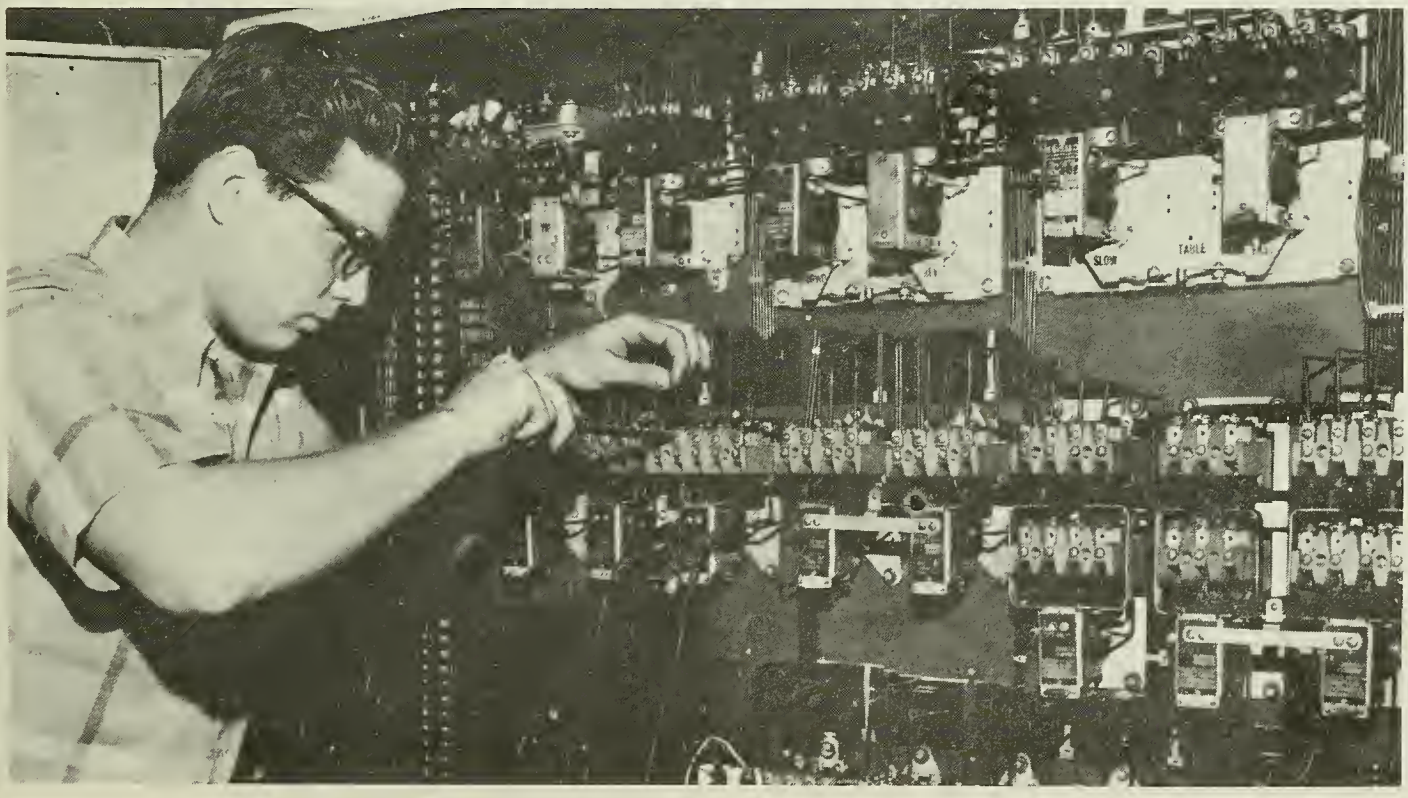
			Credits
EL	25	Alternating Current Fund.	5
EL	26	Basic Electrical Construct. Lab	2
EL	27	Residential Blueprint Reading & National Electrical Code	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	Trigonometry	3
			17

THIRD SEMESTER

			Credits
EL	38	Electric Motor Control	4
EL	39	Basic Electronics	4
PHY	21	Physics - Mechanics	4
PE		Physical Education	1
		Elective - General*	3/4
			18/19

FOURTH SEMESTER

			Credits
EL	42	Advanced Electrical Theory	3
EL	47	Electrical Systems Analysis	2
EL	48	Electrical Construction Blueprint Reading	4
ECO	11	Basic Economics	3
PHY	33	Physics - Heat and Light	4
			16



ELECTRONICS TECHNOLOGY (ET)

Associate Degree / Two Years

You will study basic electronics theories and how to apply them to current practices and to future developments. Through practical laboratory work with modern electronics equipment, you will learn to assist electronic engineers in the design, construction, installation, and testing of all kinds of electronic equipment.

Types of Jobs: Electronics engineering technician, electronic instrument technician, electronic lab technician, industrial electronics technician, production technician, and technical writer.

High School Subjects Required: Algebra and Geometry; one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
ET 11	Electronics Theory I	5
ET 12	Electronics Applications I	3
ET 14	Electrical Circuit Analysis	3
ENG 11	Language & Composition I	
	or	3
ENG 101	English Composition I	
MAT 103	College Algebra	3
		17

SECOND SEMESTER		Credits
ET 21	Electronics Theory II	5
ET 22	Electronics Applications II	3
ET 23	Basic Electronics Circuit Analysis	3
ENG 13	Technical Writing	3
MAT 104	Trigonometry	3
		17

THIRD SEMESTER		Credits
ET 33	Intermediate Electronic Circuit Analysis	3
ET 34	Electronics Theory III	5
ET 37	Electronics Applications III	3
	Elective in Science	3/4
PE	Physical Education	1
		15/16

FOURTH SEMESTER		Credits
ET 47	Electronics Theory IV	5
ET 48	Electronics Applications IV	3
	Electronics Elective	3
	Elective - General*	3/4
PE	Physical Education	1
		15/16

OFFICE MACHINE REPAIRMAN (OR)

Certificate / Two Years

You will be trained to perform periodic inspections and to make repairs on different types of office machines and equipment. Related courses such as mathematics, typing, and economics will give you a better chance for advancement.

Types of Jobs: Typewriter, adding machine, duplicator serviceman; manufacturer's service representative; shop foreman in distribution outlet, branch manager, self-employment.

FIRST SEMESTER		Hours
BS 09	Typewriting	48
OR 12	Office Machine Repair I	384
ENG 01	Communications I	48
		480

SECOND SEMESTER		Hours
OR 22	Office Machine Repair II	432
MAT 10	General Mathematics	48
		480

THIRD SEMESTER		Hours
OR 32	Office Machine Repair III	432
	Optional Elective	0/48
		432/480

FOURTH SEMESTER		Hours
OR 43	Office Machine Repair IV	432
	Optional Elective	0/48
		432/480

ENGINEERING AND DESIGN TECHNOLOGIES

ARCHITECTURAL TECHNOLOGY (AT)

Associate Degree / Two Years

You will study drafting principles and practices and learn how to do residential and commercial working drawings. First and second-year design fundamentals will be included as well as structural calculations and site planning.

Types of Jobs: Private practice, corporate departments, public bureaus, construction firms, landscape architecutre firms, and engineering fields.

High School Subjects Required: Algebra and Geometry; one year of science.

FIRST SEMESTER		Credits
AT 11	Statics	3
AT 26	Architectural Graphics I	4
AT 32	Introduction to Historic Theory in Architecture	3
AT 45	Building Materials & Methods I	3
MAT 103	College Algebra	
	or	3
MAT 112	Calculus I	
PE	Physical Education	1
		17

SECOND SEMESTER		Credits
AT 12	Structures I	2
AT 27	Architectural Graphics II	3
AT 28	Architectural Working Drawings	2
AT 66	Design I	4
ENG 11	Language and Composition I	
	or	3
ENG 101	English Composition I	
MAT 104	Trigonometry	
	or	3
MAT 211	Calculus II	
		17

THIRD SEMESTER		Credits
AT 13	Structures II	2
AT 46	Building Materials & Methods	3
AT 51	Building Equipment I	3
AT 62	Site Planning	3
AT 67	Design II	4
ENG 12	Language and Composition II	
	or	3
ENG 102	English Composition II	
		18

FOURTH SEMESTER		Credits
AT 14	Structures III	2
AT 52	Building Equipment II	3
AT 68	Design III	4
AT 75	Professional Administration & Contract Documents	3
PE	Physical Education	1
AT 76	Seminar	3
		16

CIVIL ENGINEERING TECHNOLOGY (CT)

Associate Degree / Two Years

You will learn to assist civil engineers in the planning, designing, and construction of highways, railroads, bridges, airfields, buildings and dams. You will study such areas of civil engineering as surveying, cartography, photogrammetry, highway engineering, and structural design. Experience with modern equipment will prepare you to meet current industrial demands.

Types of Jobs: Engineering technician, surveyor, inspector, draftsman, cartographer, design technician, and photogrammetrist.

Required High School Subjects: Algebra and Geometry; one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
CT 05	Materials of Construction	2
CT 06	Engineering Drawing	3
CT 10	Introductory Surveying	2
ENG 11	Language & Composition I	
	or	3
ENG 101	English Composition I	
MAT 103	College Algebra	3
PE	Physical Education	1
	Elective in Social Science	3
		17

SECOND SEMESTER		Credits
CT 20	Plane Surveying	4
CT 23	Topographic Drawing and Cartography	3
ECO 11	Basic Economics	
	or	3
ECO 201	Principles of Economics	
ENG 12	Language and Composition II	
	or	3
ENG 102	English Composition II	
MAT 104	Trigonometry	3
PE	Physical Education	1
		17

THIRD SEMESTER		Credits
CT 30	Route Surveying	4
CT 35	Highway Engineering Tech.	3
CT 34	Statics	3
PHY 21	Physics - Mechanics	4
GEL 105	Physical Geology	4
		18

FOURTH SEMESTER		Credits
CT 40	Advanced Surveying	3
CT 46	Photogrammetry	3
CS 04	Technical Computer Program	3
CT 44	Strength of Materials	
	or	3/4
GEL 106	Historical Geology	
	Elective - General*	3/4
		15/17

ENGINEERING DRAFTING TECHNOLOGY (ED)

Associate Degree / Two Years

This program will give you a broad knowledge of mechanical drafting and engineering procedures and will provide you with the necessary background in mathematics, science, and communications skills to work as a technician or engineering aid. You will be prepared to make a variety of engineering drawings and calculations.

Types of Jobs: Mechanical detail and layout draftsman, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing.

Required High School Subjects: Algebra and Geometry; one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER			Credits
ED	20	Power Transmission (8 weeks)	4
ED	21	Mechanisms (8 weeks)	4
MAT	104	Trigonometry	3
PE		Physical Education	1
		Elective - General*	3/4
			15/16

THIRD SEMESTER			Credits
ED	30	Detail & Assembly Drawing (8 weeks)	4
ED	31	Applied Drafting Techniques (8 weeks)	4
PHY	21	Physics - Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER			Credits
ED	40	Advanced Detail I (8 weeks)	4
ED	41	Advanced Detail II (8 weeks)	4
PHY	33	Phsyics - Heat & Light	4
		Elective** (Below)	3/4
			15/16

**Electives:

ED	51	Descriptive Geometry	3
MAT	112	Calculus I	4
PHY	22	Introduction to Metallurgy	4
PHY	31	Physics - Electricity/Magnetism	4
TD	21	Tool Drafting	4

GRAPHIC ARTS (GA)

Associate Degree / Two Years

You will gain a firm understanding of highly diversified backshop operations along with management, marketing, and supervisory training. Practical laboratory work with modern graphic arts equipment will give you a sound background in areas of composition, makeup, photo process, imposition and stripping, platemaking, presswork, and bindery.

Types of Jobs: Graphic arts executive training, in-plant supervisors, foreman, self-employed printer, marketing and technical sales services.

Required High School Subjects: Algebra and Geometry; one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
GA	13	Layout and Design	4
GA	14	Principles Typographic Design	4
BM	13	Principles of Business	3
MAT	103	College Algebra	3
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
GA	25	Process Camera	4
GA	27	Film Assembly & Platemaking	4
ENG	101	English Composition	3
MAT	104	Trigonometry or Elective	3/4
PE		Physical Education	1
		Elective - General*	3
			18/19

THIRD SEMESTER

			Credits
GA	34	Printing Substrates and Finishing Operations	4
GA	38	Printing Presses	4
GA	42	Printing Estimates Practices	4
		Elective in Science** (Below)	3/4
			15/16

FOURTH SEMESTER

			Credits
GA	43	Printing Production Practices	4
GA	44	Independent Study	2
CSC	101	Intro. to Computer Science	3
ENG	102	English Composition II	3
		Elective - General*	3/4
			15/16

**Electives in Science:

ESC	10	Environmental Science	3
PHY	111	General Physics	4
PHY	21	Physics - Mechanics	4

MACHINIST GENERAL (MG)

Certificate / Two Years

The program offers you training on machine tools that are common to most shops and emphasizes skill with machines. Classroom analysis of various jobs and machine operations will increase your capabilities as a machinist. Mathematics, science, and communications skills are included to help you meet the demands of modern technical developments.

Types of Jobs: Machinist, machine repair mechanic, setup man for production line work, skilled tool room mechanic.

FIRST SEMESTER		Hours
MG 10	Basic Machine Shop I	208
MG 15	Basic Machine Shop II	208
MAT 10	General Mathematics	48
		464

SECOND SEMESTER		Hours
MG 20	Basic Machine Shop III	208
MG 21	Basic Machine Shop IV	208
ENG 01	Communications I	48
		464

THIRD SEMESTER		Hours
MG 30	Advanced Machine Shop I	208
MG 31	Advanced Machine Shop II	208
	Optional Elective	0/48
		416/464

FOURTH SEMESTER		Hours
MG 40	Advanced Machine Shop III	208
MG 41	Advanced Machine Shop IV	208
	Optional Elective	0/48
		416/464

MECHANICAL DRAFTING (MD)

Certificate / Two Years

Emphasis is placed upon drafting skills which will enable you to produce drawings for modern industry. You will learn the latest industrial processes which will improve and enhance your drawings and insure your efficiency.

Types of Jobs: Mechanical, sheet metal, piping, or electrical draftsman; related jobs such as estimator or field erection supervisor.

FIRST SEMESTER		Hours
MD 10	Drafting Techniques I (8 weeks)	192
MD 11	Drafting Techniques II (8 weeks)	192
MAT 10	General Mathematics	48
ENG 01	Communications I	48
		480

SECOND SEMESTER		Hours
MD 20	Applied Drafting I (8 weeks)	192
MD 21	Applied Drafting II (8 weeks)	192
ED 12	Industrial Processes	48
MAT 20	Algebra	48
		480

THIRD SEMESTER		Hours
MD 30	Applied Drafting III (8 weeks)	192
MD 31	Applied Drafting IV (8 weeks)	192
PHY 20	Physics Survey	48
		432

FOURTH SEMESTER		Hours
MD 40	Applied Drafting V (8 weeks)	192
MD 41	Applied Drafting VI (8 weeks)	192
	Optional Elective	0/48
		384/432

PRINTING (GP)

Certificate / One Year

You will study the many and complex operations and occupations involved in modern printing. All printing operations are covered to insure your versatility in the field.

Types of Jobs: Cameraman, stripper, layout man, compositor, platemaker, and pressman.

FIRST SEMESTER		Hours
GP 01	Composing I	128
GP 02	Photomechanical I	128
GP 03	Press and Bindery I	128
ENG 01	Communications I	48
	Optional Elective	0/48
		432/480

SECOND SEMESTER		Hours
GP 04	Composing II	128
GP 05	Photomechanical II	128
GP 06	Press and Bindery II	128
MAT 10	General Mathematics	48
	Optional Elective	0/48
		432/480

SHEET METAL (SM)

Certificate / Two Years

Stress will be placed upon the principles and practices of modern metal working. Fundamentals of the trade and the use of equipment, coupled with some general background courses will provide more opportunities for advancement.

Types of Jobs: Various phases of sheet metal work including the service trades, heating, airconditioning, ventilation, manufacturing, construction, shipbuilding, and self-employment.

FIRST SEMESTER		Hours
SM 10	Basic Sheet Metal (Hand & Machine)	400
ENG 01	Communications I	48
MAT 10	General Mathematics	48
		496

THIRD SEMESTER		Hours
SM 30	Basic Commercial Sheet Metal	400
		400

SECOND SEMESTER		Hours
SM 20	Intermediate Processes	400
ENG 02	Communications II	48
MAT 20	Algebra	48
		496

FOURTH SEMESTER		Hours
SM 40	Commercial Sheet Metal	400
BM 47	Small Business Management	48
PHY 20	Physics Survey	48
		496

SIGN PAINTING (SP)

Certificate / Two Years

Practical experience in lettering skills, design, layout, and type finishing of signs and showcards. Materials, equipment, and safety practices used in painting, building, and sign erecting will be stressed.

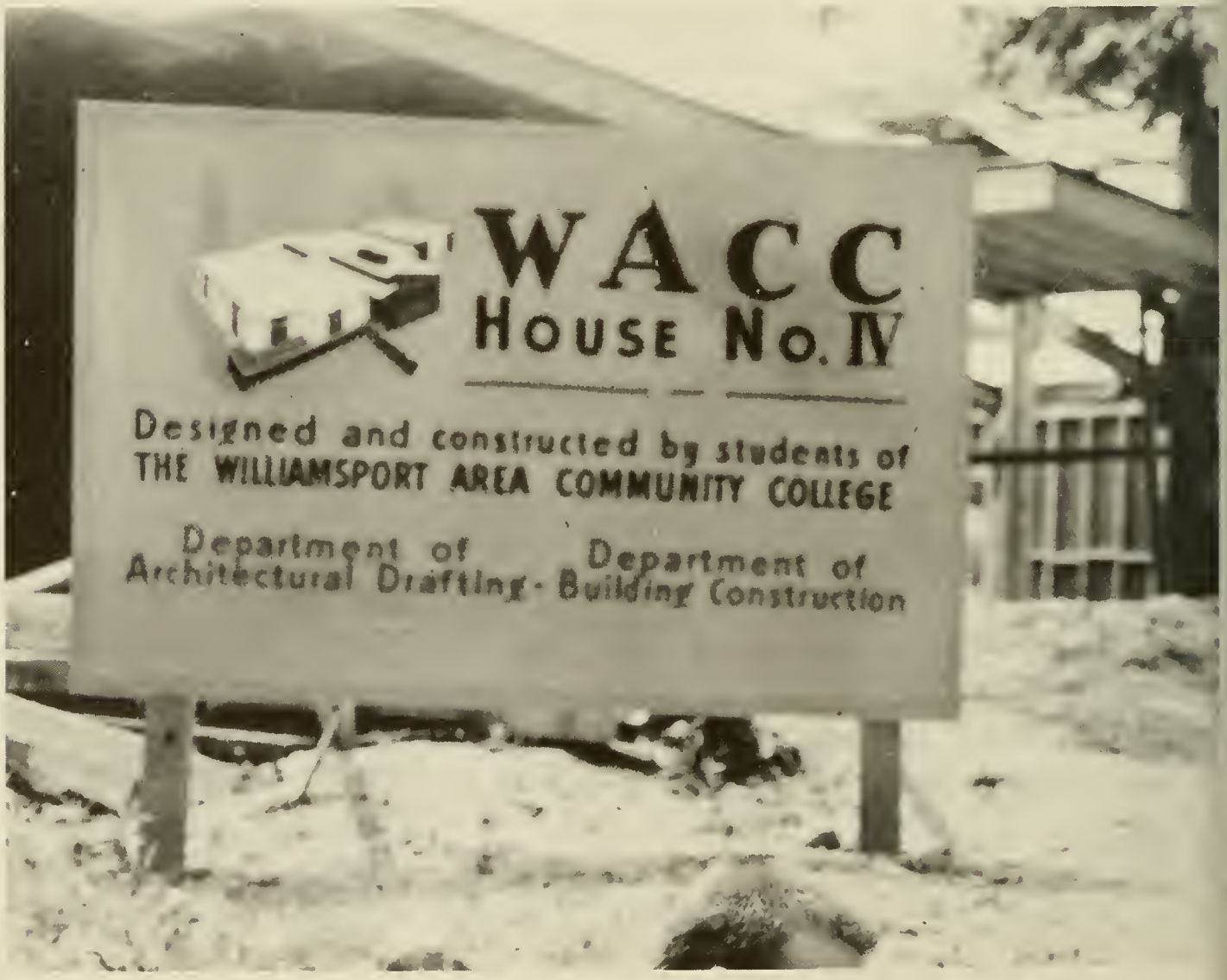
Types of Jobs: Self-employment; work with sign painters, bottlers, outdoor advertisers, department stores, theatres, television stations, and truck fleets.

FIRST SEMESTER		Hours
SP 01	Basic Alphabets	400
ENG 01	Communications I	48
		448

SECOND SEMESTER		Hours
SP 15	Letter Strokes & Showcard Layout	400
MAT 10	General Mathematics	48
		448

THIRD SEMESTER		Hours
SP 16	Commercial Showcards	400
SP 12	Gold Leaf	
	or	64
SP 13	Silk Screen	
		464

FOURTH SEMESTER		Hours
SP 04	Commercial Signs	400
SP 14	Billboard Pictorials	
	or	64
SP 13	Silk Screen	
	Optional Elective	0/48
		464/512



TECHNICAL ILLUSTRATION (TI)

Association Degree / Two Years

This program will enable you to work with engineering draftsmen or technical writers. Your job will be to interpret engineering drawings into three-dimensional illustrations. The courses will give you not only the drawing skills necessary for this work but also the broad background in science, mathematics and communications helpful for advancement in industry.

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers; illustrations for company literature: parts and sales catalogs; maintenance, repair, and assembly manuals, charts, and handbooks.

Required High School Subjects: Algebra and Geometry, one year of science.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER		Credits
ED 10	Basic Drafting I (8 weeks)	4
ED 11	Basic Drafting II (8 weeks)	4
ED 12	Industrial Processes	2
ENG 11	Language and Composition I	3
MAT 103	College Algebra	3
PE	Physical Education	1
		17

SECOND SEMESTER		Credits
GA 13	Layout and Design	4
ED 03	Gears and Cams	2
TI 21	Prespective Drawing	4
TI 23	Rendering I	4
MAT 104	Trigonometry	3
		17

THIRD SEMESTER		Credits
ENG 13	Technical Writing	3
TI 31	Axonometric Drawing	4
TI 33	Color	2
TI 34	Rendering II	4
PHY 21	Physics-Mechanics	4
PE	Physical Education	1
		18

FOURTH SEMESTER		Credits
TI 40	Illustration Practice	4
TI 41	Technical Drawing	4
TI 42	Layout and Design	2
ECO 11	Basic Economics	3
	Elective - General*	3/4
		16/17

TOOL DESIGN TECHNOLOGY (TD)

Associate Degree / Two Years

You will learn drafting and tool production techniques and produce tool drawings. There will be an emphasis on planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies. You will be taught how to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer; numerical programmer, design draftsman, estimator, and systems program designer.

**GENERAL ELECTIVES are courses chosen from outside your Program of concentration.*

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	3
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
TD	21	Tool Drafting (Eight weeks)	4
TT	04	Elementary Machine Shop I	3
ENG	12	Language & Composition II	3
MAT	104	Trigonometry	3
PE		Physical Education	1
			18

THIRD SEMESTER

			Credits
TD	30	Cutting-tool Design (8 weeks)	4
TD	31	Fixture Design (8 weeks)	4
TT	05	Elementary Machine Shop II	3
PHY	21	Physics - Mechanics	4
		Elective - General*	3/4
			18/19

FOURTH SEMESTER

			Credits
TD	40	Gage Design and Programming (8 weeks)	4
TT	06	Elementary Machine Shop III	3
TD	41	Die Design (8 weeks)	4
ECO	11	Basic Economics	3
PHY	22	Introduction to Metallurgy	4
			18

TOOLMAKING TECHNOLOGY (TT)

Association Degree / Two Years

You will prepare to work with the engineer and shop superintendent or foreman. Emphasis will be given to laboratory or shop work where you will be trained in machine operation and in theory, blueprint reading, and mechanical drawing. Routing of jobs and the sequence of operations, as well as related courses in math, science, and economics are included to increase your advancement opportunities.

Types of Jobs: Toolmaker: experimental, numerical controller; production technician; administrative assistant.

Required High School Subjects: One year of mathematics, one year of science.

FIRST SEMESTER

			Credits
TT	11	Engine Lathe I	4
TT	12	Milling Machine I	4
TT	14	Bench/Drill Press/Shaper	3
ENG	11	Language & Composition I	
		or	3
ENG	102	English Composition II	
MAT	103	College Albegra	3
PE		Physical Education	1
			17

SECOND SEMESTER

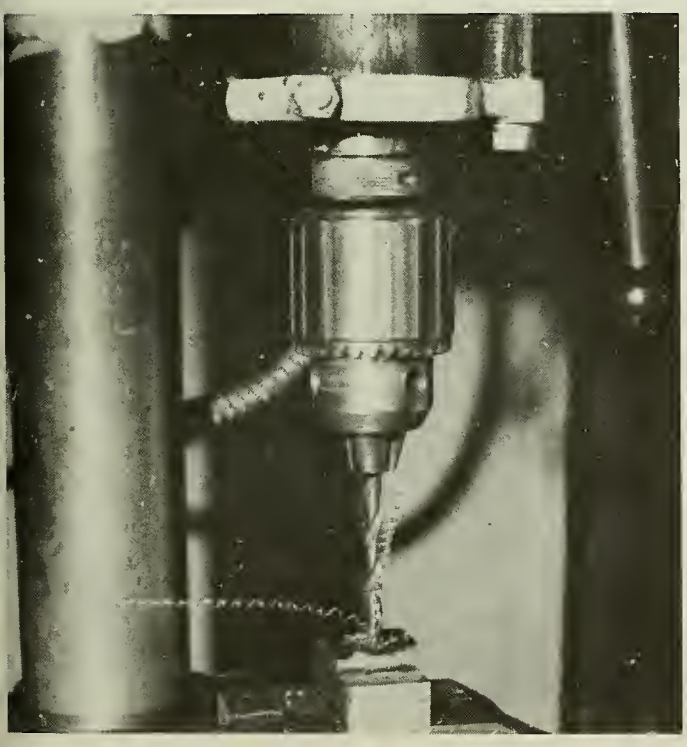
			Credits
ED	01	Mechanical Drawing	2
TT	21	Quality Control/ Blueprint Reading	4
TT	20	Turret Lathe/Automatic Screw Machine	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	Trigonometry	3
PE		Physical Education	1
			17

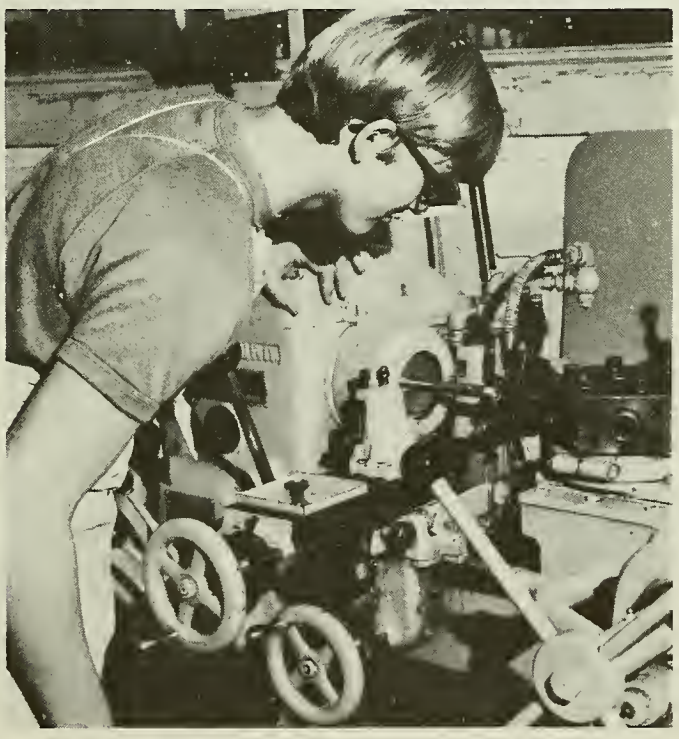
THIRD SEMESTER

			Credits
TT	30	Bench/Jig Borer	2
TT	31	Engine Lathe II	4
TT	32	Milling Machine II	4
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
PHY	21	Physics - Mechanics	4
			17

FOURTH SEMESTER

			Credits
TT	40	Grinding Machines	7
TT	23	Heat Treating	3
PHY	22	Introduction to Metallurgy	4
			14





WELDING (WE)

Certificate / Two Years

Though emphasis placed on theory and manipulative skills, the program will prepare you as a competent craftsman. Stress on developments and techniques in electric, oxyacetylene, and inert gas shielded methods of welding will gain you proficiency.

Types of Jobs: Welder, welder operator, fitter, specialist, foreman, supervisor, and inspector.

FIRST SEMESTER		Hours
WE 15	Acetylene Welding	400
MAT 10	General Mathematics	48
		448

SECOND SEMESTER		Hours
WE 25	Electric Welding	400
ENG 01	Communications I	48
		448

THIRD SEMESTER		Hours
WE 35	Inert Gas Welding	400
ED 05	Blueprint Reading	48
	Optional Elective	0/48
		448/496

FOURTH SEMESTER		Hours
WE 45	Advanced Welding	448
	Optional Elective	0/48
		448/496

public service and health occupations

DENTAL LABORATORY TECHNICIAN (DL)

Special Program

Associate Degree / Five Semester
Lewisburg Federal Penitentiary

FIRST SEMESTER

		Credits
DL 12	Intro. to Dental Technology	5
DL 13	Dental Materials	3
MAT 100	Fundamentals of Mathematics I	3
ENG 101	English Composition I	3
		14

SECOND SEMESTER

		Credits
DL 22	Denture Techniques I	6
DL 23	Oral Anatomy	3
MAT 200	Fundamentals of Math II	3
ENG 102	English Composition II	3
		15

THIRD SEMESTER

		Credits
DL 32	Denture Techniques II	6
DL 33	Odontography	4
	Related Courses as available	6
		16

FOURTH SEMESTER

		Credits
DL 42	Cast Partial Techniques I	6
DL 44	Crown and Bridge I	5
	Related Courses as available	6
		17

FIFTH SEMESTER

		Credits
DL 50	Cast Partial Techniques II	6
DL 51	Crown and Bridge II	5
		11

FOOD AND HOSPITALITY MANAGEMENT (FH)

Associate Degree / Two Years

While studying to become manager of a food operation, hotel, or motel, you will gain skills in areas of business and personnel management, as well as food preparation and supervision. You will get practical experience through directed work and other community contacts.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
FH	10	Introductory Foods	3
FH	11	Nutrition	3
ENG	11	Language & Composition I or	3
ENG	101	English Composition I	
BM	13	Principles of Business	3
PSY	101	General Psychology	3
PE		Physical Education	1
			16

SECOND SEMESTER			Credits
FH	20	Quantity Food Preparation	3
FH	21	Menu Planning & Cost Control	3
ENG	12	Language & Composition II or	3
ENG	102	English Composition II	
FH	22	Front Office Management and Housekeeping	3
PE		Physical Education	1
		Elective - General*	3
			16

THIRD SEMESTER			Credits
FH	31	Hospitality Management and Theory	3
FH	32	Purchasing, Storage, and Sanitation	3
FH	33	Hospitality Merchandising	3
BM	21	Business Communications	3
		Science Elective	3/4
			15/16

FOURTH SEMESTER			Credits
FH	40	Equipment and Layouts	3
FH	41	Supervision, Work Simplification and Incentives	3
FH	42	Beverage Management, Catering	3
BA	11	Accounting	3
		Elective - General*	3
			15

OPERATING ROOM TECHNICIAN (OT)

Certificate / One Year

Completion of this program will enable you to functtion as a skilled technician whose duties include care, preparation, and maintenance of sterile and unsterile supplies, and assisting registered nurses in the preparation of operating rooms for surgery in "scrub in" and "circulating" assignments.

Types of Jobs: Member of surgical team in hospital operating rooms and central service departments or other areas closely concerned with the principles and practice of surgical asepsis.

FIRST SEMESTER

			Hours
OT	02	Body Structure & Function	80
OT	11	Operating Room Techniques I	320
		Optional Elective	0/48
			400/448

SECOND SEMESTER

			Hours
OT	22	Operating Room Techniques II	464
		Optional Elective	0/48
			464/512

PRACTICUM

FH 30 Job Experience (120 Hrs.) No. Credit.

PRACTICAL NURSING (NU)

Certificate / Fifty-Two Weeks

Classroom instruction in theory and basic skills is given on the WACC campus. Practical experiences in actual patient care settings are obtained at the two local hospitals (Williamsport Hospital and Divine Providence Hospital) and at the Lysock View Home and Hospital. Under the guidance of college instructors at the cooperating institutions, students gain experience in the care of adult patients and in maternal and child health nursing. Mental health concepts, pharmacology, and diet therapy are integrated throughout the program.

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty.

FIRST SEMESTER - 16 Weeks of 27 Hours Each

			Hours
NU	10	Foundations of Nursing	288
NU	01	Nursing Relationships	48
NU	02	Scientific Principles Relating to Nursing	96
			432

SECOND SEMESTER - 15 Weeks of 33 Hours Each

			Hours
NU	11	Medical-Surgical Nursing Elem.	225
NU	12	Parental and Child Health	270
			495

THIRD SEMESTER - 15 Weeks of 33 Hours Each

			Hours
NU	13	Medical-Surgical Nursing Inter.	495
			495

Theory - 600 Hours 2/5 Ratio
Practicum - 912 Hours 3/5 Ratio
Total 1,512 Hours

PRACTICUM

NU	14	Practicum	90
			90

Three weeks between first and second semesters.
Thirty hours per week.
VACATION - Twenty school days.

RADIOLOGIC TECHNOLOGY (RT)

Associate Degree / Two Years

Courses include anatomy, physiology, physics, medical terminology, professional ethics, and radiologic equipment and safety. Practical experience with sick and injured patients, under qualified technical supervision in local hospitals, will be an important aspect of your training.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry.

An additional 960 hours of internship are required before you are eligible to take the registry examinations to qualify as a registered radiologic technician. Arrangements for this internship will be made with cooperating hospitals. The Associate Degree will be awarded at the completion of the fourth semester, before the internship is served.

FIRST SEMESTER		Credits
BIO 105	Anatomy & Physiology of Man I	4
ENG 101	English Composition I	3
RT 10	Radiologic Technology I	5
MAT 103	College Algebra	3
ST 30	Medical Terminology	3
		18

SECOND SEMESTER		Credits
BIO 106	Anatomy & Physiology of Man II	4
ENG 102	English Composition II	3
RT 11	Radiologic Technology II	7
MAT 104	Trigonometry	3
		17

THIRD SEMESTER		Credits
PHY 111	Introductory Physics	4
RT 12	Radiologic Technology III	10
	Elective - Psychology**	3
		17

FOURTH SEMESTER		Credits
PHY 113	Radiation Physics	3
RT 13	Radiologic Technology IV	10
SOC 101	General Sociology	3
		16

**Psychology Electives:

PSY 101	General Psychology	3
PSY 205	Abnormal Psychology	3
PSY 210	Social Psychology	3

TRANSPORTATION TECHNOLOGIES

AUTO BODY REPAIRMAN (AB)

Certificate / Two Years

You will master trade tools and equipment through the study of theory and practical experience in sheet metal repairs, sanding, and application of fillers, primers, and color coatings. Shrinking, stretching, welding, panel installation, interior trim, and glass replacement are also stressed. You will become skilled in frame and sterring alignment as well as damage estimating and repair.

Types of Jobs: Shop assignments to any of the areas mentioned. Insurance companies, repair shops, dealerships, self-employment.

FIRST SEMESTER		Hours
AB 11	Auto Body Repair I	192
AB 12	Auto Body Repair II	192
ENG 01	Communications I	48
		432

THIRD SEMESTER		Hours
AB 51	Auto Body Repair V	192
AB 52	Auto Body Repair VI	192
	Optional Elective	0/48
		384/432

SECOND SEMESTER		Hours
AB 21	Auto Body Repair III	192
AB 22	Auto Body Repair IV	192
MAT 10	General Mathematics	48
		432

FOURTH SEMESTER		Hours
AB 61	Auto Body Reapir VII	192
AB 62	Auto Body Repair VIII	192
	Optional Elective	0/48
		384/432

AUTOMOTIVE MECHANICS (AM)

Certificate / Two Years

Elementary theory and manipulative skills, as practiced with modern tools and equipment, are stressed in a program which teaches you to service and repair light commercial and passenger vehicles. You will gain proficiency in working with power train, steering, brakes, ignition, carburetion, body, and electrical components and assemblies.

Types of Jobs: General auto mechanic in a dealership, independent garage, fleet operation, service station, self-employed.

FIRST SEMESTER		Hours
AM 11	Auto Mechanics I	192
AM 12	Auto Mechanics II	192
ENG 01	Communications I	48
		432

THIRD SEMESTER		Hours
AM 51	Auto Mechanics V	192
AM 52	Auto Mechanics VI	192
	Optional Elective	0/48
		384/432

SECOND SEMESTER		Hours
AM 21	Auto Mechanics III	192
AM 22	Auto Mechanics IV	192
MAT 10	General Mathematics	48
		432

FOURTH SEMESTER		Hours
AM 61	Auto Mechanics VII	192
AM 62	Auto Mechanics VIII	192
	Optional Elective	0/48
		384/432

AUTOMOTIVE TECHNOLOGY (AU)

Associate Degree / Two Years

While studying basic and advanced automotive theory, you will become knowledgeable in the use of modern tools and equipment to work on minor and major components of individual units. Theory applications, manipulative skills, and semi-professional demands are course specifics which prepare you to solve mechanical problems.

Types of Jobs: Highly skilled jobs in the automotive manufacturing industry, including testing and experimental departments, and component remanufacturing; rebuilding shops, vehicle diagnostic centers.

**GENERAL ELECTIVES* are courses chosen from outside your Program of concentration.*

FIRST SEMESTER			Credits
AU	50	Fuel & Electrical Systems	7
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	100	Fundamentals of Mathematics I	
		or	3
MAT	103	College Algebra	
ED	01	Mechanical Drawing	2
PE		Physical Education	1
			16

SECOND SEMESTER			Credits
AU	51	Power Train	7
AU	52	Brakes, Chassis, Suspension	7
MAT	200	Fundamentals of Mathematics II	
		or	3
MAT	104	Trigonometry	
PE		Physical Education	1
			18

THIRD SEMESTER			Credits
AU	53	Engines	7
ENG	13	Technical Writing	3
BM	13	Principles of Business	3
		Elective	3
			16

FOURTH SEMESTER			Credits
AU	54	General Repair Service	3
AU	55	State Inspection Repairs	3
AU	56	Service Specialty	7
		Elective - General*	3/4
			16/17

AVIATION MAINTENANCE TECHNICIAN (AC)

Certificate / Two Years

To become an aircraft and powerplant maintenance technician, you will learn the theories of and gain practical skills in such areas as aircraft sheetmetal, electricity, welding, dope and fabric, hydraulics, aircraft powerplant maintenance, and trouble shooting. This program is approved and licensed by the Federal Aviation Administration, and as a graduate, you will be qualified to take its oral, written, and practical examinations for your Airplane and Powerplant Maintenance Certificate.

Types of Jobs: Maintenance technician for airlines, fixed base operators, and manufacturer's services.

FIRST SEMESTER		Hours
AC 11	General Airframe and Powerplant	408
ED 04	Aircraft Drawings	64
MAT 15	General Avaiation Mathematics	48
		520

SECOND SEMESTER		Hours
AC 26	Powerplant	480
	Optional Elective	0/48
		480/528

THIRD SEMESTER		Hours
AC 32	Basic Airframe	480
		480

FOURTH SEMESTER		Hours
AC 42	Advanced Airframe and Powerplant	480
		480

DIESEL MECHANICS (DM)

Certificate / Two Years

Here is your program if you like to work with large land and water vehicles. Using modern trade tools and equipment, you will study theories and develop manipulative skills in the care of diesel-powered vehicles. Some specialization is available in fuel injection service, engine repair and rebuilding, power train (except engines), brakes, steering, and chassis work.

Types of Jobs: Mechanic in any of these fields: truck dealership, independent garage, truck fleet, contractor, farm or construction equipment dealership, mining, quarrying, and waterways fleet. Also field service representative or self-employment.

FIRST SEMESTER		Hours
AM 11	Automotive Mechanics I	192
AM 12	Automotive Mechanics II	192
ENG 01	Communications I	48
		432

SECOND SEMESTER		Hours
DM 21	Diesel Mechanics I	192
DM 22	Diesel Mechanics II	192
MAT 10	General Mathematics	48
		432

THIRD SEMESTER		Hours
DM 51	Diesel Mechanics III	192
DM 52	Diesel Mechanics IV	192
	Optional Elective	0/48
		384/432

FOURTH SEMESTER		Hours
DM 61	Diesel Mechanics V	192
DM 62	Diesel Mechanics VI	192
	Optional Elective	0/48
		384/432

COMMENCEMENT AWARDS

give public recognition of achievement in various areas accompanied by cash awards in varying amounts.

President's Award
for leadership and service to the College community.

Trustees' Award
to a male student for achievement under exceptional circumstances.

Trustees' Award
to a female student for achievement under exceptional circumstances.

Dean's Awards
for scholastic achievement.

Alcan Cable Award
for scholastic achievement in Engineering Science.

American Society of Highway Engineers Award
for achievement in Civil Engineering Technology.

American Society of Highway Engineers Award
for achievement in Heavy Construction Equipment Service and Operation.

Avco Award
for scholastic achievement in Humanities and Social Sciences.

Lewis H. Bardo Memorial Award
to a student who exemplifies the ideals of Lewis H. Bardo (devotion to duty, helpfulness to others, friendliness).

Dale Russ Berg Award
for proficiency in the operation and use of heavy equipment.

Darling Valve Award
for scholastic achievement in a Special Field of Study certificate program.

Elizabeth R. Downs Award
for secretarial proficiency.

Glenn E. Dunlap Scholarship Award
for high scholastic standing, better than average skills, dependability and competence, and capabilities of leadership as exemplified by Glenn E. Dunlap - selected by the Building Construction faculty.

Health Occupations Award
to the Radiologic Technology student who demonstrates outstanding achievement in ethical conduct and technical skills.

Health Occupations Award
to the Operating Room Technician student who demonstrated outstanding achievement in ethical conduct and technical skills.

Howard Award
for scholastic achievement in Forestry.

Howard Award
for scholastic achievement in Horticulture.

M. W. Kellogg Award
for scholastic achievement in an Associate of Applied Science Program.

Lycoming County American Cancer Society Award
to a graduating nurse who excels in bedside nursing of the cancer patient and shows compassion for the family of the cancer patient.

Pennsylvania Institute of Certified Public Accountants Award
for excellence in Accounting studies.

Penn-York Lumbermen's Award
for outstanding citizenship and interest in management and wise use of forest resources.

Phi Beta Lambda Fraternity Award
to the outstanding student in the Business & Computer Science division.

Helen A. Smith Award
to the Practical Nursing student who has shown extraordinary achievement in theory, practice, and personal growth.

William J. Stitzel Memorial Award
to the Heavy Equipment Construction graduate who best exemplifies William J. Stitzel's dedication and service to the College and the student body.

Robert G. Thomas Award
to the graduate attaining the highest cumulative average in Welding

Wall Street Journal Student Achievement Award
to graduate demonstrating superior achievement in Business.

COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject – Accounting, Architectural Technology, Automotive, Aviation, Biology, Broadcasting, etc.

The letters and numbers preceding the name of the course are an identification code for recording purposes.

If a particular course has a prerequisite or corequisite, that fact is indicated in italics at the end of the course description.

The number immediately following the description of the course content indicates the number of credits. "3 Cr." or hours "192 Hrs." received for the course. Within the parentheses, the number before the dash indicates lecture hours and the number after the dash indicates laboratory or shop hours.

ACCOUNTING (BA)

BA 11 ELEMENTARY ACCOUNTING
This course is designed as a basic course in accounting for those students in Secretarial Science, Industrial Management, Forestry, Food Service, etc. This course will develop those accounting principles and theories which will prepare the student for employment in a single propietorship form of business. 3 Cr. (3-0).

BA 12 ACCOUNTING I
Introduction to basic accounting principles: accounting cycle; preparation and interpretation of statements and reports for propietorships and partnerships. 3 Cr. (3-0).

BA 22 ACCOUNTING II
Advanced accounting principles as they apply to different forms of business: corporate accounting, problems of manufacturing, dpeartmental and branch operations. 3 Cr. (3-0). *Prerequisite: BA 12 or Department Permission.*

BA 32 INTERMEDIATE ACCOUNTING I
Intangible assets, liabilities, stockholders equities; analysis and interpretation of financial reports, statements. 3 Cr. (3-0).
Prerequisite: BA 22.

BA 42 COST ACCOUNTING
Records and inventories, business transactions, determining costs after processing, profit through distribution. 3 Cr. (3-0). *Prerequisite: BA 22.*

BA 44 INTERMEDIATE ACCOUNTING II
Intermediate Accounting II deals with noncurrent assests, liabilities; investments, plant, equipment, intangibles, long-term liabilities; stockholder's equity: paid-in capital, retained earnings; various analytical processes using comparative data, special ratios, measurements. 3 Cr. (3-0).
Prerequisite: BA 32 or Department Permission.

BA 45 INCOME TAX ACCOUNTING
Designed to familiarize the student with the different rules and regulations regarding Federal and Pennsylvania State income taxes. Federal and Pennsylvania State tax deducations, credits, exemptions, rates, computations and the various forms that students should be familiar with will be stressed throughout this course. 3 Cr. (3-0).

BA 46 AUDITING
Designed to offer a thorough knowledge of auditing through the application of principles and adherence to auditing standards. Such things as: internal controls, the field of auditing and public accounting, audit techniques, audit work papers, verification of accounts, reporting the audit and internal auditing are discussed throughout the course. 3 Cr. (3-0).

ARCHITECTURAL TECHNOLOGY (AT)

AT 11 STATICS
Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design, properties of areas. 3 Cr. (3-0).

AT 12 STRUCTURES I
Theory and design of wood and timber; identification, characteristics and classifications of wood; working stresses; design and beams, columns, joints, rafters, plank, laminated sections; timber connections, fastenings and their working properties; laminated lumber, shapes. 2 Cr. (2-0).

AT 13 STRUCTURES II
Theory and design of steel beams, columns, and connections (welded, bolted and riveted) for moment, shear, slope, deflections, axial and eccentric loads; the AISC Handbook; bearing capacity of masonry walls, design of bearing plates, steel joists, space frames and trusses. 2 Cr. (2-0).

AT 14 STRUCTURES III
Reinforced concrete building; theory and design of slabs, beams, compression steel, columns, prestressed concrete, footings, walls; floors; quantitative study of structural forms from the view of material development. 2 Cr. (2-0).

AT 25 BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology; use and care of drawing instruments and media, lettering, orthographic projection principles, preliminary drawing and sketching, preparation of working drawings, exterior and interior finish work, detailing cabinet and mill work. 96 Hrs., (1-5).

AT 26 ARCHITECTURAL GRAPHICS I
Basic architectural graphic media; projection drawings; axonometrics and perspective; color and texture; introduction to the architectural model; basic vocubulary of architectural drawings: composition, space, form, value, texture, shades, shadows. 4 Cr. (1-9).

AT 27 ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white, color problems; emphasis on development of techniques, style, presentation. 3 Cr. (1-6).

AT 28 ARCHITECTURAL WORKING DRAWINGS
Laboratory practice in producing a complete set of architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation quality. 2 Cr. (0-6).

AT 32 INTRO. HISTORIC THEORY IN ARCHITECTURE
Introductory course in architecture giving an overview of the curriculum and its relation to the profession. Discussions of architectural employment and further architectural education. A survey of architectural ideas as an overview to historical theory of building, planning, and urban development from the emergence of man to the present day. 3 Cr. (3-0).

AT 45 BUILDING MATERIALS AND METHODS I
Study of typical materials of residential construction: their production, properties, use, performance in combinations. 3 Cr. (3-0).

AT 46 BUILDING MATERIALS AND METHODS II
Subsurface exploration and foundations, water and damp-proofing; methods and materials for construction of masonry, concrete walls, slabs; wall, floor, and roof systems; the curtain wall; fireproofing; building codes; architectural hardware. 3 Cr. (3-0). *Prerequisite: AT 45.*

AT 51 BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air-conditioning, and control systems; sources and design of water supply; sanitary and storm systems; computation of plumbing, heating and cooling loads. 3 Cr. (3-0).

AT 52 BUILDING EQUIPMENT II
Theory and design of electrical service distribution systems; selection of electrical equipment, fixtures; electrical heating design; theory and measurement of light, sound; vertical transportation systems; sound systems. 3 Cr. (3-0).

AT 62 SITE PLANNING
Theories, methods and equipment for the measurement of distances, angles, differences in elevation; theory of error; computations; adjustment of data; mapping application of sureying methods to construction, boundaries; emphasis on production and interpetation of maps for selection of sites, planning of subdivisions, preparation of master plans; examination of sites for building; elements of architectural earth sculpture, water, subsurface conditions, landscaping. 3 Cr. (2-3).

AT 64 ADVANCED DESIGN I
Continuation of the design process; individual projects to develop student's ability to coordinate the design concept with construction. 4 Cr. (1-9).

AT 65 ADVANCED DESIGN II
Continuation of AT 64. 4 Cr. (1-9).

AT 66 DESIGN I
Fundamental relationships of function, space, time, light, needs of man; introduction to the design process; collaborative work; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawing models. 4 Cr. (1-9).

AT 67 DESIGN II
Problems of differential space organizations; specialized spacial forms; relationship of space, form, structure, equipment, light; applications of elements of detailing; design of load bearing and curtain walls relating to total design; problems of tall buildings, building groups, associated site planning; architectural character and aesthetics; correlation of design with associated methods of construction; analysis, development of programs, collaborative work; advanced problems of form, visual expression; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawings; models. 4 Cr. (1-9). *Prerequisite: AT 66.*

AT 68 DESIGN III
Final course in design sequence, coordinates the design process with administrative procedures encountered in architectural practice. Emphasis placed on design and design development. Utilizes knowledge and skills acquired in previous and concurrent design and technical courses. Assigned

problems emphasize quality and understanding with a systematic, uniform approach used to develop and explain building design. 4 Cr. (1-9).

AT 75 PROFESSIONAL ADMINISTRATION AND CONTRACT DOCUMENTS
Architectural registration, professional organization, ethics; forms of architectural service; contract law; bonds; liens; codes; insurance; bidding procedures; specification writing; supervision and administration of construction operation. 3 Cr. (3-0).

AT 76 SEMINAR
Study of architectural ideas, theories, current problems; nature of architect as leader; human activity; relation to man's physical, social, intellectual and spiritual nature; influence of tradition, science, technology. 3 Cr. (3-0).

AUTOMOTIVE (AB, AM, & AU)

AB 11 AUTO BODY REPAIR I
Basic theory and practice in trade fundamentals; body and chassis work; sanding; masking. 192 Hrs., (3-9).

AB 12 AUTO BODY REPAIR II
Metal work; gas and electric welding; stretching and shrinkage of metal; fasteners; riveting. 192 Hrs., (3-9).

AB 21 AUTO BODY REPAIR III
Used car reconditioning; interior trim work. 192 Hr., (3-9).

AB 22 AUTO BODY REPAIR IV
Panel installation and alignment; front and rear suspension and alignment; frame alignment. 192 Hrs., (3-9).

AB 51 AUTO BODY REPAIR V
Metal working and filling; color requirements. 192 Hrs. (3-9).

AB 52 AUTO BODY REPAIR VI
Color matching; spray painting; working "totals". 192 Hrs. (3-9).

AB 61 AUTO BODY REPAIR VII
Electrical practice; special trade tools and equipment; damage estimate; customizing. 192 Hrs. (3-9).

AB 62 AUTO BODY REPAIR VIII
Customizing; stripping; vinyl tops; "felting"; custom painting; estimating. 192 Hrs. (3-9).

AM 11 AUTOMOTIVE MECHANICS I
Basic theory of automotive design and utilization; familiarity and use of various common tools of the trade; engines, steering, and brakes study and practicum; study of various fasteners. 192 Hrs. (3-9).

AM 12 AUTOMOTIVE MECHANICS II
Study and practicum of electrical and drive train components; further hand and machine tool familiarization; study of fasteners. 192 Hrs. (3-9).

AM 21 AUTOMOTIVE MECHANICS III
Advance study of electrical units and practical work on same; further tool and fastener familiarization. 192 Hrs. (3-9).

AM 22 AUTOMOTIVE MECHANICS IV
Steering, brakes, and power train service and study; tools and fasteners. 192 Hrs. (3-9).

AM 51 AUTOMOTIVE MECHANICS V
Advance theory and practice on engines and power train; electrical stystems. 192 Hrs. (3-9).

AM 52 AUTOMOTIVE MECHANICS VI
Advance theory and practice on chassis and on braking systems; electrical systems. 192 Hrs. (3-9).

AM 61 AUTOMOTIVE MECHANICS VII
Heating and cooling; ventilation; tune-up; diagnosis; testing. 192 Hrs. (3-9).

AM 62 AUTOMOTIVE MECHANICS VIII
Diagnosis; tune-up; ventilation; testing devices. 192 Hrs. (3-9).

AU 50 FUEL & ELECTRICAL SYSTEMS
Fundamentals of electricity-electron theory, Ohm's law, and basic circuitry. Principles of operation and service of ignition, charging, and cranking circuits. Lighting and accessories circuits. Operation and service of the fuel system. Principles of carburetion and fuel injection. Emphasis on carburetor service. Air conditioning control circuits. 7 Cr. (4-9).

AU 51 POWER TRAIN
Operating principles and repair procedures for the clutch, standard transmission, U-joints, and differential. Fundamental theory of torque converters and planetary gearing. Minor service procedures for automatic transmissions. 7 Cr. (4-9).

AU 52 BRAKES, CHASSIS AND SUSPENSION
Wheel alignment and balancing. Types of suspension systems. Suspension repairs. Drum and disc brake operating principles. Brake service procedures. Fundamental principles of hydraulic systems. Standard and power steering adjustments and service. 7 Cr. (4-9).

AU 53 ENGINES
Operation of two and four-stroke spark ignition engines. Service procedures on common automobile engines including valve jobs, engine overhaul, and cooling system repairs. Theory of gas cycles in automotive engines and air conditioners. Air conditioner repair and charging procedures. 7 Cr. (4-9).

AU 54 GENERAL REPAIR SERVICE
Application of service procedures to common repair jobs such as tune-up, brake relining, electrical service, and cooling system repairs. 3 Cr. (1-6). *Prerequisites: AU 50, AU 51, AU 52, and AU 53.*

AU 55 STATE INSPECTION REPAIRS
Study of the state code book. Application and demonstration of checking procedures to actual work. Regulations govering certification of state inspection stations and personnel. 3 Cr. (2-3). *Prerequisites: AU 50, AU 52.*

AU 56 SERVICE SPECIALITY
Students may choose one of the following areas: automatic transmission overhaul, front end work, foreign car service, or service management techniques. 7 Cr. (4-9). *Prerequisites: AU 50, AU 51, AU 52.*

AVIATION (AC)

AC 11 GENERAL AIRFRAME AND POWERPLANT
Basic concepts of aircraft, powerplant, aircraft systems maintenance; aircraft, powerplant nomenclature; theory of operation, weight, balance; blueprint reading; mechanics privileges, limitations; publications, aircraft forms. 408 Hrs. (196-212)*

AC 26 POWERPLANT
Theory, construction, nomenclature, operation of internal combustion engines; trade tools; theory, maintenance of fuel; electrical, ignition, lubrication, jet, reciprocating propulsion systems. 480 Hrs. (188-292)*. *Prerequisite: AC 11.*

AC 32 BASIC AIRFRAME
Theory of flight; aircraft control systems; basic woodworking, hovering, skills in finishing, sheet metal, welding, rigging, assembly; operation and theory of aircraft electrical, hydraulic, pneumatic, air conditioning, fuel systems. 480 Hrs. (172-308)*. *Prerequisite: AC 11.*

AC 42 ADVANCED AIRFRAME AND POWERPLANT
Review and advanced practice in structural repairs of all metal aircraft systems; live aircraft experience; service procedures; overhaul, testing, installation, operation of live engines; troubleshooting of fuel, electrical, ignition, instrument systems. 480 Hrs. (228-252)*.
Prerequisites: AC 26, AC 32.

**Lecture and lab hours are shown per semester, not per week.*

BIOLOGY (BIO)

BIO 03 BOTANY (HORTICULTURE)
A course in which the fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics are studies. 3 Cr. (2-3), 80 Hrs.

BIO 25 ANATOMY AND PHYSIOLOGY
A study of basic human anatomy and physiology; cells, tissues, and tumors; nervous, excretory, reproductive, and endocrine systems; diseases; principles of chemistry, microbiology and physics. 3 Cr. (3-0).

BIO 101 GENERAL BIOLOGY I
Fundamental processes of living organisms. Main concepts of biology are developed beginning with considerations of the chemical basis of life. Structure, function, and evolution of cells. 4 Cr. (3-3).

BIO 102 GENERAL BIOLOGY II
Continuation of BIO 101. Structure, function, interrelationships, and evolution of organisms. 4 Cr. (3-3).
Prerequisite: BIO 101 or permission of the instructor.

BIO 105 ANATOMY AND PHYSIOLOGY OF MAN I
A medically oriented study of the structure and function of the human body. Intended for students specializing in nursing, medical technology, and biology. Lecture and laboratory. 4 Cr. (3-3).

BIO 106 ANATOMY AND PHYSIOLOGY OF MAN II
Continuation of BIO 105. 4 Cr. (3-3). *Prerequisite: BIO 105.*

BIO 201 MICROBIOLOGY
Biology of microorganisms including bacteria, rickettsiae, viruses, fungi, protozoa, and helminths. Relationships between microorganisms and higher forms of life. 4 Cr. (3-3). *Prerequisite: BIO 102.*

BIO 203 GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy. 4 Cr. (3-3). *Prerequisite: BIO 102.*

BIO 208 ECOLOGY
This course includes the basic principles of the relationships of plants and animals to their environments. Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology are discussed. Local terrestrial and aquatic environments are investigated. 4 Cr. (3-3).
Prerequisite: One semester of college level Biology.

BIO 290 SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

BROADCASTING (BR)

BR 10 INTRODUCTION TO ANNOUNCING
Principles of announcing; practice in reading, voice inflecting, pronunciation of foreign names, and similar exercises; use of tape-recorder in pre-recording repetitive items; lab instruction. 3 Cr. (3-0).

BR 14 STATION MANAGEMENT AND COMMUNITY RESPONSIBILITY
Study of problems related to serving community needs while making a profit; ratio of advertising to program time; character of station; meeting community responsibility through community interest programs; responsible use of editorial privilege. 3 Cr. (3-0).

BR 16 NEWSWRITING FOR BROADCASTERS
A brief review of English as it is structured for news writing. Then the Who? What? Where? When? and How? of news writing, as it is peculiarly designed for the ear, for use in radio and television. Typical news stories are written and recorded as though for broadcast. 3 Cr. (3-0).

BR 17 BASIC ELECTRONICS AND FCC LICENSING
Fundamental mechanics of operation of tape recorders, turntables, network facilities, and multispeaker systems; mechanics necessary to obtain FCC licensing; field visits to at least five different stations. 3 Cr. (3-0).

BR 18 ADVANCED ANNOUNCING
Special techniques employed in sports announcing, "talk" programs, and interviews; lab practice; practice on College audio-visual equipment. 3 Cr. (3-0).

BR 19 RADIO PROGRAMMING
Determining basic character of a station; setting up a program to meet objectives; use of "public interest" programs and national, state, and local news to meet FCC requirements; maintaining balance between "talk" and "music" programs. 3 Cr. (3-0).

BR 20 BROADCAST ADVERTISING
The impact of advertising and its history in American culture is studied. The phases of marketing analysis along with media selection are examined. Preparation of radio and TV advertising are then a large part of student activity. 3 Cr. (3-0).

BR 21 IN-SERVICE TRAINING I
Supervised work with the Office of College Information in the preparation of typed news releases for local radio stations, or assignments to the College's closed-circuit television production teams. 2 Cr. (0-6).

BR 22 IN-SERVICE TRAINING II
Advanced work with the Office of College Information in the preparation of "public service" programs for local radio stations, or more responsible assignments on closed-circuit television. 2 Cr. (0-6).

BR 23 IN-SERVICE TRAINING III
Major assignments with the Office of College Information or the audio-visual closed-circuit television system including the total preparation of at least one program from conception to final production. 2 Cr. (0-6).

BUSINESS ADMINISTRATION (BUS)

BUS 201 PRINCIPLES OF ACCOUNTING I
Fundamental theory. Current concepts and standards of recording, classifying, summarizing and interpreting business activity through accounting. Practice in analysis and interpretation of financial position of business organization. 3 Cr. (3-0).

BUS 202 PRINCIPLES OF ACCOUNTING II
Continuation of BUS 201, 3 Cr. (3-0). *Prerequisite: BUS 201.*

BUS 250 BUSINESS LAW I
Survey of English and American business law, with special attention to contracts and including an introduction to property, crimes, and torts. 3 Cr. (3-0).

BUS 251 BUSINESS LAW II
Laws pertaining to real and personal property, landlord and tenant, sales of goods, and negotiable instruments. 3 Cr. (3-0). *Prerequisite: BUS 250.*

BUSINESS MANAGEMENT (BM)

BM 13 PRINCIPLES OF BUSINESS
Basic business procedures, business in American economic systems. 3 Cr. (3-0).

BM 14 OFFICE MACHINES
Understanding and operation of ten-key, full-keyboard adding-listing, rotary, key-driven calculator machines. 2 Cr. (1-3), 64 Hrs.

BM 21 BUSINESS COMMUNICATIONS
English usage, both oral and written; transcription of business letters; collateral reading. 3 Cr. (3-0), 48 Hrs.

BM 23 BUSINESS MATHEMATICS
Mathematics of installment buying; discounting notes, drafts, insurance contracts, property and income taxes, social security, stocks, bonds, transportation; graphs, measurements, business records. 3 Cr. (3-0), 48 Hrs.

BM 24 OFFICE PROCEDURES
Office forms, mail, filing, telephone, office management; instruction and proctice in business machines: ten-key, full-keyboard, adding-listing, rotary, key-driven calculators, duplicating, dictating, transcribing. 2 Cr. (1-3).

BM 31 BUSINESS LAW I
Evolution of law, individual and business contracts, negotiable instruments, personal property sales, bailment contracts. 3 Cr. (3-0).

BM 33 BUSINESS ORGANIZATION AND MANAGEMENT
Structure, establishment and financing of sole proprietorships, partnerships, corporations; elements of an organization; principles of authority, accountability and responsibility; levels' theory; communication; policy formulation; incentive and efficiency. 3 Cr. (3-0).

BM 35 BUSINESS PSYCHOLOGY
Personal adjustments for employees; modern business behavior problems. 3 Cr. (3-0).

BM 36 MARKETING
Merchandising methods; distribution channels; pricing; cost; brands; government regulations; influence of buyer and consumers on marketing programs; current marketing trends. 3 Cr. (3-0).

BM 37 BANKING AND INVESTMENTS
Banking industry as related to business and economic growth, personal and business banking services, stocks and bonds marketing. 3 Cr. (3-0).

BM 38 INSURANCE
Structure and practice of insurance field; types and uses of policies; importance of insurance. 3 Cr. (3-0).

BM 39 REAL ESTATE
Real estate basics: real property ownership, lease arrangements, legal aspects of property transactions; functions and procedures of real estate broker. 3 Cr. (3-0).

BM 41 BUSINESS LAW II
Insurance law contracts; surety and quaranty agreements; partnerships; corporations; real property; wills; bankruptcy proceedings; court systems; lawsuit procedures. 3 Cr. (3-0). *Prerequisite: BM 31.*

BM 42 RETAILING
Designed to familiarize the student with the field of retailing. This course will provide the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

BM 43 SALESMANSHIP
Salesmanship examines the positive role personal selling plays in the American economy and documents the extent to which selling has aided in our economic growth. This course is designed to show the salesmanship role in helping customers recognize and satisfy wants and needs, and how this satisfaction can lead to a higher standard of living. 3 Cr. (3-0).

BM 45 FINANCE
Private and public finance; monetary and credit systems, policies, problems; factors affecting supply of funds. 3 Cr. (3-0).

BM 47 SMALL BUSINESS MANAGEMENT
Location, plant layout, financial problems, records, forms, purchasing, inventory, employer-employee relations, basic business law, and improvement of small business enterprises. 3 Cr. (3-0), 48 Hrs.

CARPENTRY (CB & CC)

CB 10 WOODWORKING FOR CARPENTERS
Basic principles and skills of hand and machine woodworking operations; special projects. 4 Cr. (2-6).

CB 11 CONSTRUCTION CARPENTRY
Basic principles of frame construction: foundations and concrete formwork, types of building frames, strength of beams and girders, structural sheathing and house details; ideas and trends in construction methods and techniques. 4 Cr. (2-6).

CB 24 ESTIMATING AND BLUEPRINTS
Introduction; types of drawings; lines, marks, symbols, conventions, scales, dimensions; quantities of material and cost estimating. 2 Cr. (2-0).

CB 25 BLOCK CONSTRUCTION
Block laying skills in lab; practical work; classroom instruction covering materials used, types and sizes of blocks, principles of cost estimation. 6 Cr. (2-12).

CB 30 ROOF-FRAMING THEORY
Principles of rafter layout, use of framing square, problems of roof framing and construction, types of roofs and rafters. 3 Cr. (3-0).

CB 34 BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy; following architect's drawings; chimney, fireplace and wall projects. 5 Cr. (2-9).

CB 40 ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry; modern finishing materials; methods of applications; exterior and interior

trim; millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material; trim and moldings; built-in cabinet-work; stairbuilding; school-sponsored construction work. 4 Cr. (2-6).

CB 42 BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction, solution of practical problems; special advanced projects, campus construction work including house construction projects. 6 Cr. (3-9).

CB 44 CONCRETE CONSTRUCTION
Principles of concrete design, water-cement ratio, proportions of ingredients, reinforced concrete, study of concrete footers, and walls, finishing with hand and power trowel equipment, proper methods of curing and testing. 3 Cr. (2-3).

CC 51 CONCRETE AND BLOCK (8 weeks)
The methods and materials used in laying out and building block and concrete walls, as well as those principles used in forming, pouring and finishing of concrete footings, reinforced concrete and concrete slabs, are studied and applied. Appropriate tools are introduced and instruction in their proper use and care is offered. 200 Hrs. (5-20).

CC 52 HAND TOOLS (8 weeks)
An introduction to the tools and quipment of the construction industry. Basically theory, the course will present to the student a wide variety of specialized tools and equipment in order to familiarize him with their use and care. While demonstrations will be used extensively, no attempt will be made to instruct the student, this being left to appropriate times during courses that are essentially practicum. 200 Hrs. (5-20).

CC 53 INTERIOR FINISH (8 weeks)
Instruction is given in the selection and application of materials used for interior walls, ceilings and floors. Ample opportunity is afforded the student to actually use these materials, and the tools generally associated with them, through both shop and permanent installations. 176 Hrs. (5-17).

CC 54 SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas, from wall and floor coverings through fundamental electrical wiring and plumbing and heating. Instruction and practical experience will give a broader knowledge about these often sub-contracted trades. 152 Hrs. (3-16).

CC 61 BRICK AND STONE (8weeks)
A study is made of brick and stone products that are currently being used in construction, with emphasis being placed on common methods of applying these materials. Through application of these methods within the shop and wherever possible, through permanent projects outside the shop, the student will be given the opportunity to discover and develop his skills. 200 Hrs. (5-20).

CC 62 EXTERIOR FINISH (8 weeks)
Although basically concerned with developing and enhancing skills in the selection and use of siding and roofing materials, the course also offers experience in door and window framing, exterior trim, cornice work and insulation materials and methods. 200 Hrs. (5-20).

CC 63 INTERIOR TRIM
Presents a broad area of building construction, including door hinging, moldings and trim, built-in features, stair building and kitchen cabinets. The

course is designed to offer the student a wide range of information and, whereever possible and practical, provide for adequate experience in the use of the methods and materials studied. 176 Hrs. (5-17).

CC 64 PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Utilization of the knowledge and skills acquired while pursuing the construction curriculum. Supervised permanent projects on and around campus will be used as an instructional vehicle. Whenever practical, the student will participate in all stages of the project from planning through construction. 152 Hrs. (0-19).

CC 73 BLUEPRINTS AND SPECIFICATIONS
This basic course is designed to encourage the development of techniques in the reading and interpreting of blueprints and specifications. Instruction is given in reading plan views, elevations, and details as typical of working drawings. The math principles involved in the understanding and use of these drawings are reviewed. Specifications are studied stressing their relationship to the working drawings. 48 Hrs. (3-0).
Prerequisites: CC 51, CC 52, CC 61, CC 62.

CC 74 BUILDING TRADES ESTIMATING
Planned for classroom and home study of processes and procedures to give a working knowledge of various trades and how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis placed on types of estimates and quantity take-offs. 48 Hrs. (3-0). *Prerequisite: CC 73.*

CC 84 PERSONAL AND JOB ORIENTATION
Introduction to practical techniques in self-evaluation stressing the importance of values, interests, personality, and attitude in determining work success. Emphasis placed on establishing realisitic work goals and expectations based on the student's knowledge of himself. Surveys problems the beginning worker faces preparing to take his place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 48 Hrs. (3-0).

CHEMISTRY (CHE)

CHE 11 FUNDAMENTALS OF CHEMISTRY
Introductory treatment of basic concepts of inorganic and organic chemistry, with emphasis on descriptive material. Essentially non-mathematical in approach. Lab work strengthens lecture concepts through directly related experiments. 4 Cr. (3-3).

CHE 111 GENERAL CHEMISTRY I
Fundamental principles of modern chemistry, with emphasis on inorganic aspects. Can be taken by science majors and non-science students desiring to fulfill a lab science requirement. 4 Cr. (3-3).
Prerequisite: High school algebra or equivalent.

CHE 112 GENERAL CHEMISTRY II
Continues CHE 111. Approximately one half of course devoted to introductory organic chemistry, including topics of biochemical relevance. 4 Cr. (3-3). *Prerequisite: CHE 111 or high school chemistry and algebra.*

CHE 203 ORGANIC CHEMISTRY I
Study of major classes of organic compounds with emphasis on the molecular structure and reaction mechanisms. 4 Cr. (3-3).
Prerequisite: CHE 112 or equivalent.

CHE 204 ORGANIC CHEMISTRY II
Continuation of CHE 203. 4 Cr. (3-3). *Prerequisite: CHE 203 or equivalent.*

CHE 290 SPECIAL TOPICS IN CHEMISTRY
A flexible course intended to meet special needs or interests of science students. Lectures may be supplemented with lab work as needed. 1 to 3 Cr.
Prerequisite: Permission of instructor.

CIVIL ENGINEERING TECHNOLOGY (CT)

CT 05 MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials; methods of testing and sampling construction materials; application of data on materials to design of structure. 2 Cr. (2-0).

CT 06 ENGINEERING DRAWING
Use of instruments: lettering, geometric constructions; orthographic projection; dimensioning; sketching. Architectural drawing including: plans, elevations, details, and site plans. Structural drawing including: uses and detailing for wood, concrete, and steel structures. 3 Cr. (1-6).

CT 10 INTRODUCTORY SURVEYING
Introduction to surveying; use and care of instruments; simple surveys with compass, transit, level, and tape. 2 Cr. (1-3).
Prerequisites: High school trigonometry, algebra, and geometry.

CT 20 PLANE SURVEYING
Theory and practice of plane surveying; traverses and elementary triangulation; differential and reciprocal leveling; stadia and construction surveys; plane table surveys. 4 Cr. (1-9). *Prerequisite: CT 10; MAT 103. Corequisite: MAT 104.*

CT 23 TOPOGRAPHIC DRAWING & CARTOGRAPHY
Use of conventional signs in mapping, the construction of large-scale

topographic maps, logical contouring, photographic interpretation. Methods of plotting, use and construction of small scale maps, earth's coordinate system, map projections, enlargement and reduction of maps, scribing techniques, photographic color separation, typography, reproduction, and processing. 3 Cr. (1-6). *Prerequisite: CT 06.*

CT 30 ROUTE SURVEYING
Highway curves (horizontal and vertical); plus and offset; X-sections; field astronomy; route location. 4 Cr. (1-9). *Prerequisites: CT 20; MAT 104.*

CT 34 STATICS
Basic principles of statics; coplanar and non-coplanar force systems; friction; centroids and moments of inertia; hydrostatic pressures and loads. 3 Cr. (3-1). *Prerequisite: MAT 104.*

CT 35 HIGHWAY ENGINEERING TECHNOLOGY
Highway economy, highway characteristics, drainage and structures, super-elevation, roadway construction, concrete-mix design, hydrology (precipitation and runoff), mass diagram, contracts and specifications. 3 Cr. (3-0). *Corequisite: CT 30.*

CT 40 ADVANCED SURVEYING
Theory and practice of boundary surveys; city surveys; mine surveys; hydrographic surveys and steam gaging; bridge surveys; survey control, and state coordinate stystms; public land surveys; precise leveling and triangulation. 3 Cr. (2-3). *Prerequisite: CT 30.*

CT 44 STRENGTH OF MATERIALS
Engineering materials and properties; shear and moments in beams; stresses in beams; design of beams; deflection of beams; columns. 3 Cr. (3-0). *Prerequisite: CT 34.*

CT 46 PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods; geometry of aerial photographs; aerial triangulation; flight planning; mosaics; contracts and specifications. 3 Cr. (2-3). *Prerequisites: CT 23; MAT 104.*

COMPUTER OPERATOR (CO)

CO 10 BASIC COMPUTER OPERATIONS.
Introduces all the physical aspects of data processing. Training for competence in operating punch card and computer equipment along with peripheral devices found in EDP. Confidence in operating ability developed through on-the-job training in the WACC computer center. Exposure to data processing hardware. 4 Cr. (3-3), 96 Hrs. *Corequisite: CS 18.*

CO 11 COMPUTER OPERATIONS INTERNSHIP I
Practical experience in computer operations by assignment to the college's computer center and the data communications laboratory. 2 Cr. (0-6), 96 Hrs. *Corequisite: CO 10.*

CO 20 ADVANCED COMPUTER OPERATIONS
Introduction to and training in the non-physical aspects of data processing operations. Emphasis on "software" operations. Concentrates on using EDP manuals, the programs which allow the computer to operate efficiently, and the actual operation of a computer center. Field trips to broaden understanding of computer hardware operations. 4 Cr. (4-0), 64 Hrs. *Prerequisite: CO 10.*

CO 21 COMPUTER OPERATIONS INTERNSHIP II
Continuation of CO 11. 2 Cr. (0-6), 96 Hrs. *Prerequisite: CO 11.*

CO 22 COMPUTER TECHNOLOGY
Designed to introduce additional features of computer hardware and processing concepts. Includes survey of computer hardware and comparison of various types of computers, purpose and operation of computer terminals, time-sharing, telecommunications, and mini-computers. A fundamental understanding of electronics will develop appreciation of field engineer's role. On-the-job training in the WACC computer center. 3 Cr. (3-0), 48 Hrs. *Prerequisites: CO 10 and CS 18.*

COMPUTER SCIENCE (CSC)

CS 03 INTRODUCTION TO DATA PROCESSING
Study of data processing systems and methods and applications; punch card equipment, records and files; concepts of computer systems; data representation, forms of input and output; introduction to programming, operating and data communication systems; application exercises. 3 Cr. (3-0).

CS 04 TECHNICAL COMPUTER PROGRAMMING
Study of the Fortran language and programming as applied to technical applications; basic concepts of computer systems and applications; problem analysis, flowcharting and problem solving. 3 Cr. (3-0). *Prerequisite: Algebra.*

CS 05 BUSINESS COMPUTER PROGRAMMING
Basic logic and problem organization for data processing applications; general introduction to programming concepts; RPG language and applications; basic software packages; introduction to COBOL. 3 Cr. (3-0). *Prerequisite: CS 03.*

CS 18 FUNDAMENTALS OF COMPUTER SCIENCE
Basics of data processing and problem solving techniques; types of data processing systems, punch card equipment, records and files; concepts of computer systems; logic and problem solving techniques, flow charts, algorithms; data representation and file organization; introduction to programming languages; operating prodecures with "hands-on" experience. 3 Cr. (3-0).

CS 19 COMPILER LANGUAGE I – FORTRAN
Fortran IV language programming as applied to business and mathematics problems; problem analysis, programming techniques and procedures; utilization of magnetic tape and disc. 3 Cr. (3-0).

CS 20 SUPPORT SYSTEMS CS
Advanced study of computer concepts and software; computer operating systems and job control techniques with "hands-on" practice; utilities and program libraries; programming language. 3 Cr. (3-0). *Prerequisite: CS 18.*

CS 27 ASSEMBLER LANGUAGE I
Beginning course in Basic Assembler Language, data representation, instructions, coding; problem analysis, flowcharting; program writing, execution, debugging and documentation; job control and operation systems. 4 Cr. (4-0). *Prerequisites; CS 18 and CS 19 (or permission of department).*

CS 30 INTERNSHIP IN COMPUTER SYSTEMS
Supervised individual research projects or assignment to an industrial data processing site for on-the-job training. 3 Cr. (0-9).
Prerequisite: Two semesters of Computer Science.

CS 33 SYSTEMS DEVELOPMENT AND APPLICATIONS I
Analysis and design of data processing systems; system investigation; input, output designs; record and file designs; information structures; problem definition, documentation, coding approaches; independent development of an assigned system problem by the student. 3 Cr. (3-0).
Prerequisite: CS 20 and CS 27

CS 35 COMPILER LANGUAGE II — COBOL
Study and programming in the COBOL computer language; language elements and divisions; program writing, execution, and diagnostics; advanced programming concepts and techniques. 4 Cr. (4-0).
Prerequisite: CS 20.

CS 37 ASSEMBLER LANGUAGE II
Continuation and expansion of CS 27; data manipulation; tape, disc and floating point operations; macro definitions and statements; analyzing and programming problems from business and scientific applications. 4 Cr. (4-0).
Prerequisite: CS 27.

CS 41 DATA MANAGEMENT
In-depth study of the structure and techniques of data representation and manipulation; sequential and random organization; list structures, complex structures; symbol tables, searching and sorting techniques; information structures, data communications. 3 Cr. (3-0). *Prerequisites: CS 27 and CS 35.*

CS 42 NUMERICAL PROGRAMMING METHODS
Basic concepts of the methods used in the numerical solution of problems, approximations, series expansions, difference tables; linear programming, simplex method; study and use of digital plotters. 3 Cr. (3-0).
Prerequisites: CS 19, MAT 200 and MAT 203.

CS 43 SYSTEMS DEVELOPMENT AND APPLICATIONS II
Independent development of an assigned systems problem and/or continuation of problem assigned in CS 33; design criteria, logic diagrams and coding; manual and operating procedures and manuals; proving the system; feedback and evaluation. 3 Cr. (3-0). *Prerequisites: CS 33 and CS 35.*

CSC 101 INTRODUCTION TO COMPUTER SCIENCE
Concepts of data processing systems, methods and applications; programming languages and program structures; FORTRAN IV programming language; problem analysis, flowcharting and computer solution of numerical and non-numerical problems. 3 Cr. (3-0).

DENTAL LABORATORY TECHNICIAN (DL)

DL 12 INTRODUCTION TO DENTAL TECHNOLOGY (BASIC FUNDAMENTALS)
In this course, the trainee becomes acquainted with the terminology, materials, tools, equipment and general layout of the area where he will be working. He is also taught how to use the above properly and the necessary safety precautions. Various basic techniques are also presented. 5 Cr. (3-6).

DL 13 DENTAL MATERIALS
The object of this course is to familiarize the trainees with the history, names, types, physical and mechanical properties, uses, proper handling and limitations of Dental Materials, including impression materials, waxes, metals, gypsum compounds, resins and porcelains. 3 Cr. (3-0).

DL 22 DENTURE TECHNIQUES I
This course explains the necessary qualities needed for satisfactory acceptable dentures. Also included are specialized techniques in tooth selection, arrangement, waxing and processing. Immediate denture technique and various repair, reline and rebasing procedures concludes the course. 6 Cr. (3-9).

DL 23 ORAL ANATOMY
A study of the skull, including its processes, namely; blood and nerve supply, muscles, joints, surfaces, glands and teeth. 3 Cr. (3-0).

DL 32 DENTURE TECHNIQUES II
Utilizing training from Denture Techniques I by practical application on actual cases. The improving of skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DL 22.*

DL 33 ODONTOGRAPHY
A study of tooth anatomy, including lectures and bench procedures. Drawing of teeth to scale and carving to scale in plaster and wax. 4 Cr. (2-6).

DL 42 CAST PARTIAL TECHNIQUES I
This course includes an overall introduction to removable partial appliances, terminology, phases of construction, use of surveyor, design, connectors, rests and retainers. Also, waxing, spruing, investing, casting, finishing and polishing. 6 Cr. (3-9).

DL 44 CROWN AND BRIDGE I
Beginning with the historical background of Crown and Bridge procedures and techniques, this course continues on to include the latest in the construction of Inlays, Crowns, and Bridges from impression to completion, including soldering and veneering. 5 Cr. (3-6).

DL 50 CAST PARTIAL TECHNIQUES II
Utilizing training from Cast Partial Techniques I by practical application on actual cases. The improving of skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DL 42.*

DL 51 CROWN AND BRIDGE II (DENTAL CERAMICS)
This course begins with a discussion into the History of the Art of Ceramics. It then covers the various compositions of dental porcelains. The manipulation, carving, firing, and glazing of porcelain follows, with characterization and shading of porcelain stressed, using stains and modifiers. The course concludes with the fusing of porcelain to gold techniques and soldering. 5 Cr. (3-6). *Prerequisite: DL 44.*

DIESEL MECHANICS (DM)

DM 21 DIESEL MECHANICS I
Theory and practicum relating to heat-ignition engines and thier application to industry. 192 Hrs. (3-9).

DM 22 DIESEL MECHANICS II
Continuation of DM 21; fuels and fuel systems; application to various vehicles. 192 Hrs. (3-9).

DM 51 DIESEL MECHANICS III
Fuel systems; sub-assemblies and components. 216 Hrs. (3-9).

DM 52 DIESEL MECHANICS IV
Fuel systems and their control; modern test instruments; on and off highway applications; hydraulics. 216 Hrs. (3-9).

DM 61 DIESEL MECHANICS V
Trouble shooting; repair of prime movers--wheel and tracked; power trains; brakes and retarders; exhaust systems; vehicle controls. 216 Hrs. (3-9).

DM 62 DIESEL MECHANICS VI
Lighting and instrumentation; hydraulics; pneumatics; controlled ventilation. 216 Hrs. (3-9).

DRAFTING – ENGINEERING (ED)

ED 01 MECHANICAL DRAWING
This course is offered to those students who are enrolled in curricula other than drafting. Use of drawing instruments, lettering, geometric construction, orthographic projection, technical sketching, isometric and oblique sketches, dimensioning, sections, auxiliary views, threads and fasteners, working drawings, and blueprint reading. 2 Cr. (1-3).

ED 02 ENGINEERING DRAFTING
Practical application of drafting to the electrical construction field for both domestic and commercial use; house diagrams with circuit schematics, wiring diagrams and complete bill of material and layout diagrams for public facilities such as the lighting system for a small community. 2 Cr. (1-3).

ED 03 GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr. (1-3).

ED 04 AIRCRAFT DRAWINGS
A study of aircraft blueprint reading for aviation maintenance technicians with emphasis on the reading and interpretation of multiview drawings including installation diagrams, schematics, the use of charts and graphs. The student will also learn to make three dimensional sketches for repair and alterations to aircraft. 64 Hrs. (1-3).

ED 05 BLUEPRINT READING
A study of blueprint reading for welders with emphasis on the reading and interpretation of multiview drawings involving dimensions, notes specifications and welding symbols. 48 Hrs. (1-2).

ED 10 BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, isometric drawings, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

ED 11 BASIC DRAFTING II (8 weeks)
Inclusion of screwthreads and fastening devices, working, assembly and installation drawings; study of sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: ED 10.*

ED 12 INDUSTRIAL PROCESSES
Theories and applications in the principal metal removal, forming, joining and casting processes. 2 Cr. (2-0), 48 Hrs.

ED 20 POWER TRANSMISSION (8 weeks)
A study of power and motion transfer through the use of gears and cams and other devices. 4 Cr. (4-12).

ED 21 MECHANISMS (8 weeks)
A study of power and motion transfer through the use of various linkages and mechanisms. 4 Cr. (4-12).

ED 30 DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate working drawings, sub-assemblies and assemblies; drawing details from sketches and other engineering specifications. 4 Cr. (4-12).
Prerequisite: ED 11.

ED 31 APPLIED DRAFTING TECHNIQUES (8 weeks)
Complicated detail drawings from industrial castings; comprehensive study of close tolerance dimensioning. 4 Cr. (4-12). *Prerequisite: ED 30.*

ED 40 ADVANCED DETAIL I (8 weeks)
Redesigning of industrial castings into weldments; detail drawings from engineering layouts; comprehensive study of welding, piping and layouts. 4 Cr. (4-12).

ED 41 ADVANCED DETAIL II (8 weeks)
Advnaced study and application of drafting using layouts from industry to make detail, assembly and sub-assembly drawings; included are geometric tolerancing, true position dimensioning and surface finish specifications in accordance with industrial and military standards. 4 Cr. (4-12).
Prerequisite: ED 31.

ED 51 DESCRIPTIVE GEOMETRY
Principles of orthographic projection; fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes; graphical computations for bearings and slopes of lines, strike and dip of planes; solution of problems of intersection of planes and solids. 3 Cr. (1-6).
Prerequisite: High school background in drafting.

DRAFTING – MECHANICAL (MD)

MD 10 DRAFTING TECHNIQUES I (8 weeks)
Mechanical drawing; lettering; geometric drawing; orthographic projection; pictorial projections; sectioning; dimensioning; auxiliary views; revolutions; free-hand sketching; reproduction processes. 192 Hrs. (1-23).

MD 11 DRAFTING TECHNIQUES II (8 weeks)
Threads, fasteners, springs; working drawings; assembly, detail and installation drawings. 192 Hrs. (1-23).

MD 20 DRAFTING-APPLIED I (8 weeks)
Study of sheet metal intersections and developments, cones, transition

pieces, irregular shapes; introduction to making accurate detail drawings from industrial machines parts. 192 Hrs. (1-23).

MD 21 DRAFTING-APPLIED II (8 weeks)
Accurate detail drawings from complicated industrial machine parts, conforming to industrial and military standards; comprehensive study of close tolerance dimensioning. 192 Hrs. (1-23).

MD 30 DRAFTING-APPLIED III (8 weeks)
Study of power transmissions, pulleys, sheaves, gears, sprokets. 192 Hrs. (1-23).

MD 31 DRAFTING-APPLIED IV (8 weeks)
Study of the mechanisms used to create motion in machines cams, linkages. 192 Hrs. (1-23).

MD 40 DRAFTING-APPLIED V (8 weeks)
Redesigning of industrial castings into weldments; detail drawings, from engineering layouts; comprehensive study of welding, piping and layout drawings. 192 Hrs. (1-23).

MD 41 DRAFTING-APPLIED VI (8 weeks)
Advanced study of drafting applications using industrial layouts to make detail, assembly, sub-assembly drawings; geometric tolerancing; true position dimensioning; surface finish specifications in accordance with industrial and military standards. 192 Hrs. (1-23).

MD 55 DRAFTING
Simple machine layout; completion of the necessary drawings according to industrial practices. 208 Hrs. (1-12). *Prerequisite: Dept. Chairman approval.*

NOTE: Courses to be taken in sequence as listed unless approval is granted by the Department Chairman.

ECONOMICS (ECO)

ECO 11 BASIC ECONOMICS
Basic principles of our economy: American capitalistic system; business cycles; investments; stock market operation; personnel policies and procedures. 3 Cr. (3-0), 48 Hrs.

ECO 201 PRINCIPLES OF ECONOMICS
An introductory course dealing primarily with the United States economy, its make-up and problems. 3 Cr. (3-0).

ECO 202 ECONOMIC ANALYSIS
A study of the theory of the firm, and analysis of economic problems involved in public policy decisions. Required of students following the business administration curriculum, or intending to major in economics. 3 Cr. (3-0). *Prerequisite: ECO 201.*

ECO 204 COMPARATIVE ECONOMIC SYSTEMS
Analysis of current economic systems, their theory and practice. 3 Cr. (3-0). *Prerequisite: ECO 201, or permission of the instructor.*

ECO 290 SPECIAL STUDIES IN ECONIMICS
A flexible course designed to meet special needs of economic students. 1-3 Cr. (1 to 3-0). *Prerequisite: Permission of the instructor.*

EDUCATION (EDU)

EDU 102 CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adults' literature. Designed to provide a basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area. 3 Cr. (3-0).

EDU 201 INTRODUCTION TO EDUCATION
Foundations of education: historical, economic, philosophical, and social. Their implications for present-day education. 3 Cr. (3-0).

ELECTRICAL (EL & EW)

EL 12 BASIC WIRING LAB
Lab course in tools and materials of trade; proper use and care of hand tools; instruction in wiring of these basic circuits; residential lighting and receptacle circuits, low voltage switching and control circuits; use of electrical underwriters rules in color coding. 2 Cr. (1-5), 96 Hrs.

EL 14 ELECTRICITY FOR THE TRADES
Theory and laboratory assignments involving electrical design and symbols as noted on building construction blueprints. Explanation of electrical diagrams, and National Electrical Code as governing agent setting rules for wiring requirements. Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory. 3 Cr. (2-3).

EL 15 DIRECT CURRENT FUNDAMENTALS
A study of the basic principles of electricity and the laws and formulas which are used to solve electrical problems. Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery. Laboratory work to enable the student to hook up equipment and instruments. 5 Cr. (4-3).

EL 16 BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacles circuits. Low voltage switching and control circuits. Electrical underwriters rules. Proper use and care of hand tools 3 Cr. (1-6).

EL 18 ACCIDENT PREVENTION
Principles of accident prevention in industry and electrical safety procedures in all human activities; lifesaving techniques. 2 Cr. (2-0), 32 Hrs.

EL 25 ALTERNATING CURRENT FUNDAMENTALS
To give the student an understanding of the fundamental principles of the behavior and flow of alternating current electricity. Class and homework assignments include the solving of problems involving current, voltage, impedance, reactance and power factor in series and parallel circuits. Learning the operating principles of AC motors, generators and control equipment. 5 Cr. (4-3).

EL 26 BASIC ELECTRICAL CONSTRUCTION LAB
A further study of the use of electrical equipment and materials, including all types of wiring devices and wiring systems. Planning and actually installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems. 2 Cr. (1-3).

EL 27 RESIDENTIAL BLUEPRINT READING/NATIONAL ELECTRICAL CODE
Planning and drawing of residential wiring systems; calculating number and size of circuits needed for lighting, appliance, and heating; remote control systems; study of National Electrical Code requirements for residential, industrial, and commercial wiring. 4 Cr. (4-0).

EL 38 ELECTRICAL MOTOR CONTROL
This course is designed to teach the student about motor control systems in industry, simple and complex, and to teach him how to trance circuits and trouble shoot a system from a schematic drawing. He will also study the principles of rotating and magnetic amplifiers, and static switching. 4 Cr. (3-3).

EL 39 BASIC ELECTRONICS
The fundamentals of electronics indluding basic symbols, circuit configurations, electron tubes, solid state devices, and rectifier, amplifier, and oscillator circuits as used in industrial work. Laboratory skills will be developed to demonstrate practical application of industrial electronics through layout and assembling various circuits, along with solid state devices. 6 Cr. (4-6). *Prerequisite: EL 25.*

EL 42 ADVANCED ELECTRICAL THEORY
A course in the solution of network problems and problems involving charge and discharge of capacitors, rotating vectors and other problems involving alternating electricity. 3 Cr. (3-0).

EL 47 ELECTRICAL SYSTEMS ANALYSIS
This course is intended to provide the student with an understanding of electrical equipment and electrical testing equipment that will enable him to locate malfunctioning equipment, and repair it in a minimum of time. Preventive maintenance and maintenance records are covered in sufficient detail to enable the student to establish the system in industry. The student should learn the usage of voltmeters, ammeters, wattmeters, ohmmeters, meg-ohmmeters, wheat-stone bridge, tachometer, and all hand tools associated with the electrical trade. 2 Cr. (1-3).

EL 48 ELECTRICAL CONSTRUCTION BLUEPRINT READING
Blueprint reading and circuit planning of electrical construction in factories and commercial buildings. Reference to the rules of the National Electric Code and the department of Labor and Industry. 4 Cr. (4-0).

EW 11 DIRECT CURRENT FUNDAMENTALS
Study of basic electical laws, electrical terms, batteries, electro-statics, electrical meters and instruments, direct-current machinery. 160 Hrs. (5-5).

EW 18 MOTOR REWINDING I
Electrical and mechanical features of various single phase motors; lab work developing knowledge and skill in rewinding and repairing single phase motors. 96 Hrs. (0-6).

EW 21 ALTERNATING CURRENT FUNDAMENTALS
Study of nature of alternating current electricity as related to residential, commercial and industrial power use; laws and formulas needed for the solution of problems in the use of AC power, study of AC machinery; lab work for demonstrating AC electrical principles; practical experience in hook-up of equipment and instruments. 160 Hrs. (5-5).

EW 24 BASIC MOTOR CONTROL
Theory and lab assignment involving wiring of starting and control equipment for DC and AC motors; including circuitry for start-stop stations, forward-reverse and jogging push button stations, and some speed control. 96 Hrs. (3-3).

EW 31 BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical mate ials; house wiring circuits, wiring boxes of many kinds, armored cable, wire mold and romex, fluorescent and incandescent light switches and receptacle circuits. 112 Hrs. (0-7).

EW 35 RESIDENTIAL BLUEPRINT AND CODE
Study of residential wiring circuits, low voltage remote control switching and electric heating; study of the National Electrical Code book and its provisions dealing with residential and other types of wiring. 64 Hrs. (4-0).

EW 37 ADVANCED MOTOR CONTROL
Theory and laboratory assignments furthering jobs learned in EW 24, with the study and use of speed controls, plugging equipment for braking, and dynamic braking, timing relays involving pneumatic and dash pot types. 96 Hrs. (1-5).

EW 39 BASIC ELECTRONICS FOR INDUSTRY
Basic electronic concepts as used in industrial control. The study of vacumn tubes, electronic circuits, solid state devices, symbols, and motor circuits. Application of these devices in laboratory practices to demonstrate use for industry. 160 Hrs. (4-6). *Prerequisite: EW 21.*

EW 41 COMMERCIAL AND INDUSTRIAL BLUEPRINT READING
Study of electrical construction planning for industry and commerce and relevant electrical code. 64 Hrs. (4-0).

EW 42 INDUSTRIAL MOTOR CONTROL
An in depth study of industrial control circuitry involving theory of SCR equipment, static control and circuitry, logic; laboratory experience in designing and constructing control panels as used in industry. 96 Hrs. (3-3).

EW 44 ADVANCED ELECTRICAL CONSTRUCTION
Practice in installation of rigid conduit and other electrical wireways; pulling in and wiring of motor controllers and other electrical equipment; study of blueprints of large electrical construction jobs. 144 Hrs. (1-8).

EW 49 ELECTRICAL MACHINERY, ANALYSIS AND REPAIR
Theory and laboratory instruction in use of complex metering methods used with industrial equipment, static and logic circuitry, equipment trouble-shooting and repair using schematic diagrams, power transmission and distribution. 128 Hrs. (4-4).

ELECTRONICS (ET)

ET 11 ELECTRONICS—THEORY I
Electricity and electronics theory including structure of matter, basic atomic theory, DC and AC, Ohm's Law, Kirchoff's Law; electrical claculations and formulas; magnetism and electromagnetism, vector analysis; resonance; electrical filters; measuring instruments. 5 Cr. (5-0).

ET 12 ELECTRONICS—APPLICATIONS I
Application of electronic concepts of component testing and identification, wiring electrical and electronic circuits; demonstration and laboratory work coupled with extensive use of electronic tools and equipment. 3 Cr. (0-9).
Prerequisite or Corequisite: ET 11.

ET 14 ELECTRICAL CIRCUIT ANALYSIS
First of three or four semester sequential courses in analysis, tracing, and problem solving including close analysis of AC and DC circuits. Special emphasis on circuit tracing and solution of electrical problems using mathematical approaches. 3 Cr. (3-0). *Prerequisite or Corequisite: ET 11.*

ET 21 ELECTRONICS—THEORY II
Continuation of ET 11: basic theory covering vacuum tubes and solid state devices as well as circuits using these devices; advanced electrical and electronic measuring instruments. 5 Cr. (5-0). *Prerequisite: ET 11, MAT 103.*

ET 22 ELECTRONICS—APPLICATIONS II
Continuation of ET 12: construction and testing of vacuum tube and solid state systems such as amplifiers, detectors; theory and operation of laboratory testing equipment including gain, distortion, frequency response and power output measurements. 3 Cr. (0-9).
Prerequisites or Corequisites: ET 12, ET 21.

ET 23 BASIC ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 14; complete analysis of electronic circuits featuring design and component selections as well as more advanced circuit checking and testing. 3 Cr. (3-0). *Prerequisites or Corequisites: ET 14, ET 21.*

ET 33 INTERMEDIATE ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 23; closer analysis of more complicated circuitry including pulse techniques and pulse generators; blocking oscillators; multivibrators and shaping networks; integrating and differentiating networks. 3 Cr. (3-0). *Prerequisites or Corequisites: ET 23, ET 31.*

ET 34 ELECTRONICS—THEORY III
Continuation of ET 21; detailed study of solid state and vacuum tube circuits and devices, and includes microwaves, wave propagation, transmission lines, gating and logic circuits. 5 Cr. (5-0). *Prerequisites: ET 21, MAT 104.*

ET 37 ELECTORNICS—APPLICATIONS III
Continuation of ET 22; construction and analysis of more sophisticated solid state and vacuum tube equipment; use of more advanced types of lab instruments; laboratory report writing. 3 Cr. (0-9).
Prerequisites or Corequisites; ET 22, ET 34.

ET 40 CALIBRATION AND STANDARDS
Lecture/demonstration course in calibration techniques using laboratory standard type instruments which are directly traceable to the National Bureau of Standards. 1 Cr. (0-3). *Prerequisite: ET 34.*

ET 41 CALIBRATION AND STANDARDIZATION
Principles of Electronic instrument calibaration and standardizing techniques. The position and purpose of the National Bureau of Standards. Instruments used in the school Standards Laboratory. 3 Cr. (3-0). *Prerequisite: ET 34.*

ET 44 ADVANCED CIRCUIT ANALYSIS
Close analysis of wave and pulses as found in color television; alignment of electronic circuits, including color television. 3 Cr. (3-0).
Prerequisite or Corequisite: ET 47.

ET 47 ELECTRONICS THEORY IV
Systems and waveform analysis; includes cathode-ray display devices, laboratory type instruments; T.V. and servo systems; computer principles. 5 Cr. (5-0). *Prerequisite: ET 34.*

ET 48 ELECTORNICS—APPLICATIONS IV
Practical applications of advnaced types of precision electronic instruments, indluding waveform measurements, signal and circuit tracing, dynamic measurements of systems performance. 3 Cr. (0-9).
Prerequisites or Corequisites: ET 37, ET 47.

ENGLISH (ENG)

ENG 01 COMMUNICATIONS I
Foundation in oral skills; propaganda, material fallacies, and small group dynamics. Development of writing competencies related to vocational objectives. 48 Hrs. (3-0).

ENG 02 COMMUNICATIONS II
Continuation of ENG 01. Studies in the dynamics of the mass media. 48 Hrs. (3-0). *Prerequisite: ENG 01.*

ENG 10 BASIC ENGLISH
Intensive review of English grammar and the basic principles of composition. No Credit 64 Hrs. (3-1).

ENG 11 LANGUAGE AND COMPOSITION I
Principles of expository writing through examination of literary forms; the essay and the short story, and study of the history of the English language. Development of speech skills through individual and group presentations of related material. 3 Cr. (3-0), 48 Hrs.

ENG 12 LANGUAGE AND COMPOSITION II
Continuation of ENG 11 with writing of expository and critical essays. Further development of speech skills. Examination of poetry, drama, and the film. Principles of research. 3 Cr. (3-0), 48 Hrs. *Prerequisite: ENG 11.*

ENG 13 TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports for business and industry. 3 Cr. (3-0), 48 Hrs.
Prerequisites; ENG 12 or Equivalent.

ENG 101 ENGLISH COMPOSITION I
Basic composition involving language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. 3 Cr. (3-0).

ENG 102 ENGLISH COMPOSITION II
Continues the writing principles of ENG 101 and includes the study of other modes of expression. 3 Cr. (3-0). *Prerequisite: ENG 101.*

ENG 105 SHORT STORY WRITING
Development of skills in writing imaginative prose and in presenting short stories for class criticism and review. 3 Cr. (3-0).

ENG 201 HISTORY OF ENGLISH LITERATURE I
The works of major English writers from Chaucer to the beginning of the Romantic Period with emphasis upon intellectual, political and literary developments. 3 Cr. (3-0). *Prerequisite: ENG 102.*

ENG 202 HISTORY OF ENGLISH LITERATURE II
The works of major English writers from the Romantic Period to the Modern with emphasis upon intellectual, political and literary developments. 3 Cr. (3-0). *Prerequisite: ENG 102.*

ENG 211 FUNDAMENTALS OF SPEECH
Basic physiology of speech. Oral reading; composition and delivery of expository speeches for different types of audiences. 3 Cr. (3-0).

ENG 250 WORLD LITERATURE I
The reading of literature expressing western man's belief in the paramount importance of the individual. Includes a survey of representative works of

continental Europe to the present. 3 Cr. (3-0).
Prerequisite: ENG 102.

ENG 290 SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

ENVIRONMENTAL SCIENCE (ESC)

ESC 10 ENRIVONMENTAL SCIENCE
Designed especially for the non-science student who wants to develop an ability to understand environmental systems and problems from a scientific rather than an emotional viewpoint. The course covers many aspects of land, water, and air pollution and its relation to living organisms, especially man. 3 Cr. (3-0), 48 Hrs.

GEOLOGY (GEL)

GEL 105 PHYSICAL GEOLOGY
Basic concepts in the study of the Earth; relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents and the ocean basins. 4 Cr. (3-3).

GEL 106 HISTORICAL GEOLOGY
Origin of the Earth and the evolutionof its crust and the development and evolution of life thereon; relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment; relative and absolute age dating of the Earth. 4 Cr. (3-3).
Prerequisite: GEL 105.

GEL 290 SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

FOOD AND HOSPITALITY (FH)

FH 10 INTRODUCTORY FOODS
Introduction to food service industries. Basic principles of food preparation are investigated. Protein, carbohydrate, and fat cookery are studied. 3 Cr. (2-3).

FH 11 NUTRITION
Sources and functions of nutrients and how they relate to bodily functioning. Dietary essentials of an optimum diet are studied. Nutritive requirements for each stage of the life cycle are included. 3 Cr. (3-0).

FH 20 QUANTITY FOOD PREPARATION
An in-depth course on cooking foods in quantity. Teaches the reasons for preparing certain foods in certain ways and what commercial equipment will produce the best product. 3 Cr. (2-3).

FH 21 MENU PLANNING AND COST CONTROL
Nutritional meals for various age, economic, cultural, and religious groups; menus for commercial, industrial, school, institutional food services; food preferences of customers; merchandising techniques; cost controlling. 3 Cr. (3-0).

FH 22 FRONT OFFICE MANAGEMENT & HOUSEKEEPING
Introduction to hotel and motel management; how to manage a front office including promotion, guest registration, and cost control; science and art of housekeeping and personnel management. 3 Cr. (2-3).

FH 30 FOOD AND HOSPITALITY WORK EXPERIENCE PRACTICUM (no credit)
Prior to the beginning of the fourth semester the student must complete 120 hours of employment in the food and hospitality industry. Evaluation by the employer, a written report by the student, and discussion of the experience with an instructor are required upon completion of the work experience.

FH 31 HOSPITALITY MANAGEMENT & THEORY
Supervised practical experience in various areas of food and hospitality management and production. Lecture and discussion of work schedules, employer-employee relations, food purchasing and preparation, supervision and training of personnel, menu planning and other subjects related to the student's choice of practicum. 3 Cr. (1-6).

FH 32 PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing. Proper procedures for good storage and sanitation. Training of staff in proper procedures to assure production of safe food. 3 Cr. (3-0).

FH 33 HOSPITALITY MERCHANDISING
Techniques of sales, merchandising and promotion as applied to food and lodging establishments. 3 Cr. (3-0).

FH 40 EQUIPMENT AND LAYOUTS
Familiarizes students with all the latest pieces of equipment, and ways to lay out facilities for best production, service, safety and sanitation. 3 Cr. (3-0).
Prerequisites: FH 10, FH 20.

FH 41 SUPERVISION-WORK SIMPLIFICATION & INCENTIVES
Analysis of concepts of supervision and its inter-personal relationships, motivations, manual motions, work place layouts, production job analysis and evaluation, establishing work loads. 3 Cr. (3-0).

FH 42 BEVERAGE MANAGEMENT & CATERING
Techniques used in restaurant management related to beverages, and in bar management, consideration of quality in beverage service. Management of the catered meal. Preparation and presentation of classic and international cuisines. 3 Cr. (2-3).

FOREST TECHNOLOGY (FR)

FR 11 DENDROLOGY
Classification, identification, and distribution of woody plants in the United States, with special emphasis on species of local commercial importance. 3 Cr. (2-3).

FR 13 FOREST MENSURATION
The measurement of standing trees, of logs, and of other cut wood products; the determination of the contents of these products in terms of board feet, cubic feet, cords, and pounds. The measurement of growth in trees and forests. 3 Cr. (2-3).

FR 15 FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees. The stem structure of trees and the identification of commercial trees species based on microscopic characteristics of the wood. 3 Cr. (2-3).

FR 21 PHOTOGRAMMETRY AND FOREST SURVEYING I
This course is an introductory study of the basic techniques of photogrammetry, photo-interpretation; and also an elementary course in surveying, including the fundamentals of plane surveying and the use and care of equipment. 3 Cr. (1-6).

FR 26 FOREST ECOLOGY AND WILDLIFE MANAGEMENT
This is an introductory course in Ecology upon which the management of our forest and wildlife resources may be based. The course is intended to increase the student's understanding of the ecological relationship of our forest and wildlife communities. 3 Cr. (2-3).

FR 28 ADVANCED FOREST MENSURATION
Quality determination of logs and trees. Estimating volumes of large timber areas by different sampling techniques. The use and interpretation of aerial photos in forest surveys. 3 Cr. (2-3).

FR 32 FOREST SURVEYING II
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use in forest operations. 3 Cr. (2-3). *Prerequisites: FR 21.*

FR 33 EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use of forest operations. 3 Cr. (2-3).

FR 36 TIMBER HARVESTING
The felling, skidding, and transportation of timber products from the woods to the point of manufacture. Application of modern logging methods and techniques, including the breakdown of entire tree stems into lengths and units of highest economic values. 3 Cr. (2-3).

FR 38 FOREST PROTECTION
The causes, effects, and methods of control of forest fires. The identification, effects and control of other harmful agents, principally insects and diseases. 3 Cr. (3-0).

FR 42 FOREST PRODUCTS
The conversion of round timber products into a semi-finished state, and the manufacture of these raw materials into finished consumer products. This

includes the seasoning of lumber and the preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FR 46 SILVICULTURE
The study of forestry practices and systems used in the establishment and management of trees for the sustained production of timber products. 3 Cr. (2-3).

FR 48 FOREST LAND MANAGEMENT AND RECREATION
A course designed to teach the forest technician student the basic concepts of multiple use management of publicly and privately owned forest lands. This course, in addition to demonstrating the use of the forest for timber production, will also show the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

GOVERNMENT (GOV)

GOV 201 AMERICAN GOVERNMENT – NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Our federal system as it has developed. 3 Cr. (3-0).

GOV 202 STATE AND LOCAL GOVERNMENT
State and local governmental institutions, their functions and responsibilities; intergovernmental relations. 3 Cr. (3-0).

GOV 290 SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1 - 3 Cr. (1 to 3-0).

GRAPHIC ARTS (GA)

GA 13 LAYOUT AND DESIGN
Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 4 Cr. (2-6).

GA 14 PRINCIPLES OF TYPOGRAPHIC DESIGN
Training in conventional and modern layouts as applied to solution of problems in printing typography. 4 Cr. (2-6).

GA 25 PROCESS CAMERA
Concepts and techniques of darkroom procedures for reproduction of line and halftone copy on process cameras. 4 Cr. (2-6).

GA 27 FILM ASSEMBLY AND PLATEMAKING
A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. Theory and application relating to various types of plates and processing procedures and register requirements of stripping and platemaking. 4 Cr. (2-6).

GA 34 PRINTING SUBSTRATES AND FINISHING OPERATIONS
Identification, selection, and relationships of films, foils, paper and board stocks, and non-printing conversions for the printing, publishing, and allied industries. 4 Cr. (2-6).

GA 38 PRINTING PRESSES
Correlation of printing press operation; ink mixing and matching; registration; preventive maintenance for quality analysis. 4 Cr. (2-6).

GA 42 PRINTING ESTIMATING PRACTICES
Lab class offering experience in estimating jobs, writing specifications and planning jobs for production. 4 Cr. (2-6).

GA 43 PRINTING PRODUCTION PRACTICES
Lab instruction relating to studies in first three semesters; firsthand opportunity to forecast production, route and plan, schedule, dispatch, inspect, control stores and stock; material handling; personnel management and industrial engineering. 4 Cr. (2-6).

GA 44 INDEPENDENT STUDY
Under the direction of the staff, student selects and develops comprehensive independent study project of own design. Project must be approved by student's advisor and department chairman. 2 Cr. (0-6).

HEAVY CONSTRUCTION EQUIPMENT SERVICE & OPERATION (SO)

SO 11 SERVICE AND OPERATION I
An introduction to heavy equipment mechanics, starting with basic tools, micrometers, lifting equipment, and progressing into complete engine nomenclature and complete engine overhaul. 216 Hours.

SO 12 SERVICE AND OPERATION II
A course in basic vehicle electrical systems including electro-magnetism, ignition circuits, starting circuits, charging circuits, and electric trouble shooting. 216 Hrs.

SO 23 SERVICE AND OPERATION III
This course will introduce you to the service and repair of diesel engines, various types of clutches, and gear-type transmissions. 192 Hrs.

SO 24 SERVICE AND OPERATION IV
This course will introduce you to the service and repair of torque converters, different types of power shift transmissions, differentials and final drives. 192 Hrs.

SO 35 SERVICE AND OPERATION V
A study of the various types of hydraulic systems used on heavy construction equipment. 216 Hrs.

SO 36 SERVICE AND OPERATION VI
In this course you will be introduced to basic construction surveying, construction blueprint reading, and grade stake reading. The course will also cover the varied types of brake systems used on heavy equipment. You will also begin to operate and service several types of heavy equipment. 216 Hrs.

SO 43 SERVICE AND OPERATION VII
Operation of various types of heavy construction equipment such as dozers, loaders, motor graders, and scrapers. You will be servicing the different machines that you are operating. 240 Hrs.

SO 44 SERVICE AND OPERATION VIII
A continuation of SO 43 placing emphasis on developing your skills as an equipment operator or mechanic. 240 Hrs.

HISTORY (HIS)

HIS 103 WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from ancient times until the 18th Century. 3 Cr. (3-0).

HIS 104 WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from the 18th Century until the present. 3 Cr. (3-0).

HIS 201 UNITED STATES–SURVEY I
Political, economic, and social development of the United States from colonial times to, and including, the Civil War and the Reconstruction Period. 3 Cr. (3-0).

HIS 202 UNITED STATES–SURVEY II
Political, economic, and social development of the United States from 1877 to and including the current Civil Rights Movement. 3 Cr. (3-0).

HIS 212 TWENTIETH CENTURY EUROPEAN
Major events from the First World War to the present with emphasis on industrialization, nationalism, social upheaval, totalitarianism, anti-colonialism, and war. 3 Cr. (3-0).

HIS 290 SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies. Admission by permission of the instructor 1 - 3 Cr. (1 to 3-0).

JOURNALISM (JO)

JO 10 NEWSWRITING
Includes short review of English grammar and then develops "Who? What? Why? When? How?" techniques of news gathering and newspaper news writing. Then stories of various types are written to typical "deadlines". 3 Cr. (3-0).

JO 11 PHOTOGRAPHY FOR NEWSMEN
Creating effective pictures for news stories and advertising; camera and darkroom techniques; lab practice. 2 Cr. (1-3).

JO 12 NEWS REPORTING
News reporting peculiar to newspapers; prosaic hospital news, obituaries, rural correspondents' stories, social news, police stories, court house sources; timeliness and accuracy. 3 Cr. (3-0).

JO 13 FEATURE WRITING
Techniques of employing reader analysis, research, in-depth interviews, photography, and graphic writing skills in feature and editorial preparation; lab practice. 3 Cr. (3-0).

JO 14 EDITING
Techniques of editing material for newspapers, magazines, and other publications; headline writing; copyreading; layout and typography; printing processes; lab practice. 3 Cr. (3-0).

JO 16 NEWSPAPER MANAGEMENT AND COMMUNITY RESPONSIBILITY
Inter-relation of news management, advertising, editorial policy, and community responsibility. 3 Cr. (3-0).

JO 21 IN-SERVICE TRAINING I
Supervised, on-the-job training with the Office of College Information or on the staff of student publications. 2 Cr. (0-6).

JO 22 IN-SERVICE TRAINING II
On-the-job training in the Office of College Information or on the staff of student publications. Students must have demonstrated the ability to handle writing assignments with minimum supervision 2 Cr. (0-6).

JO 23 IN-SERVICE TRAINING III
Editorial responsibilities on student publications or substantial assignments with the Office of College Information requiring initiative and proficiency. 2 Cr. (0-6).

JO 30 ADVERTISING
A study of the impact of advertising on the American economy and its relationship to the morality and ethics of society; includes the preparation of newspaper advertisements. 3 cr. (3-0).

LIBRARY SCIENCE (LS)

LS 10 INTRODUCTION TO BOOKS AND LIBRARIES
Survey of historical development of books, libraries, and librarianship; evolution of alphabet; early forms of books; libraries in ancient world; middle ages and modern times; invention of printing. 3 Cr. (3-0).

LS 12 INTERNSHIP
Practical experience in library activities: circulation, reference, acquisition; work in service areas: adult, children, reference extension programs, bookmobile; observation made to determine area best suited for student. 3 Cr. (0-9). *Prerequisites: LS 15 and LS 30.*

LS 15 TECHNICAL SERVICES I
Theory and experience in tasks in general areas of technical services: cataloging and classification, mechanical preparation of material, acquisition of material, maintenance of library material, book stock control, preparation for bindery. Dewey Decimal Classification and Sears Subject Headings are taught. 3 Cr. (2-3).

LS 30 TECHNICAL SERVICES II
Theory and experience in tasks in general areas of technical services: cataloging and classification, mechanical preparation of material, acquisition of material, maintenance of library material, book stock control, preparation for bindery. Library of Congress Classification and Library of Congress Subject Headings are taught. 3 Cr. (2-3). *Prerequisites: LS 15.*

LS 31 AIDS AND PRINCIPLES OF BOOK SELECTION
Introduction to principles of selection; basic aids and reference tools used; evaluation of a library's material in relation to its public. 3 Cr. (3-0).

LS 41 INTRODUCTION TO REFERENCE
Philosophy and techniques of reference work; use of basic reference materials. 3 Cr. (3-0).

LS 44 THE LIBRARY: ITS PATRONS AND PURPOSE
Examination of social relationships of library and library worker to patrons, community, country, college campus, public schools. 3 Cr. (3-0).

LS 45 AUDIO-VISUAL MATERIALS, CATALOGING AND CLASSIFICATION
Use of library film, recordings, duplicating devices and projection equipment; cataloging and classification of materials. 3 Cr. (2-3). *Prerequisite: LS 15.*

MACHINIST (MG)

MG 10 BASIC MACHINE SHOP I
Theory and practice of elementary bench work; use of hand tools; operation and care of drill press, shaper and elementary blueprint reading. 208 Hrs. (2-11).

MG 15 BASIC MACHINE SHOP II
Engine Lathe and Milling Machine; Basic machining operations on the lathe and milling machine with emphasis placed on safety and care of the machines. 208 Hrs. (2-11).

MG 20 BASIC MACHINE SHOP III
Care and sequence of operations; turret lathes and automatic screw machines. 208 Hrs. (2-11).

MG 21 BASIC MACHINE SHOP IV
Use and care of precision measuring equipment; advanced blueprint reading; freehand sketching and inspection practices. 208 Hrs. (2-11).

MG 30 ADVANCED MACHINE SHOP I
Advanced training on drill press, engine lathe milling machine and shaper, with emphasis on indexing, gear cutting and precision boring. 208 Hrs. (2-11).

MG 31 ADVANCED MACHINE SHOP II
Advanced training on drill press, engine lathe, milling machine and shaper; with emphasis on precision boring and die making. 208 Hrs. (2-11).

MG 40 ADVANCED MACHINE SHOP III
Use of grinding machines for cylindrical, internal and surface grinding. 208 Hrs. (2-11).

MG 41 ADVANCED MACHINE SHOP IV
Theory and practices of thread and tool and cutter grinders; with various phases of heat treating; normalizing, carburizing, annealing, hardening and tempering of various tool steels. 208 Hrs. (2-11).

MATHEMATICS (MAT)

MAT 03 BASIC GEOMETRY
Fundamental concepts of lines, angles, triangles, circles; basic geometric relations; general mensuration, geometric constructions; and other selected topics. 48 Hrs. (3-0). *Prerequisite: MAT 11 or equivalent.*

MAT 10 GENERAL MATHEMATICS
Arithmetic operations with whole numbers, common and decimal fractions, basic principles of measurement, percentage, averages, signed numbers, and other selected topics. 48 Hrs. (3-0).

MAT 11 BASIC ALGEBRA
Fundamental concepts of arithmetic and algebra; functions and graphs, special products and factoring; fractions, roots and exponents; systems of linear equations; introduction to statistics; other selected topics. 3 Cr. (3-0), 48 Hrs.

MAT 15 GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics. 48 Hrs. (3-0).

MAT 20 ALGEBRA
Basic concepts of algebra: symbols, equations, ratio and proportion, exponents, radicals, formulas, concepts of right triangle, trigonometry and other selected topics. 48 Hrs. (3-0). *Prerequisite: MAT or equivalent.*

MAT 100 FUNDAMENTALS OF MATHEMATICS I
Fundamental properties of arithmetic, algebra, and set notation including first and second degree equations and inequations. 3 Cr. (3-0).

MAT 103 COLLEGE ALGEBRA
Sets, operations on sets, real number system and fundamental operations of algebra, conic sections, inequalities, linear and quadratic functions, systems of equations and their graphs; ratio, proportion and variation; mathematical induction, binomial theorem and other selected topics. 3 Cr. (3-0).
Prerequisites: Two years of high school mathematics, including one year of algebra or equivalent.

MAT 104 TRIGONOMETRY
Exponential and logarithmic functions, circular functions, vectors, solution of right and oblique triangles, complex numbers, series and sequences, intuitive notion of limit, continuity, and other selected topics. 3 Cr. (3-0).
Prerequisite: MAT 103.

MAT 112 CALCULUS I
Derivatives; continuity; slope, velocity, rates of change, curve sketching; chain rule; related rates; maximum-minimum theorems; differentials; integration and some applications of integration. 4 Cr. (4-0).
Prerequisite: MAT 104 or equivalent.

MAT 200 FUNDAMENTALS OF MATHEMATICS II
Fundamental properties of logic, probability trigonometry and descriptive statics. 3 Cr. (3-0). *Prerequisite: MAT 100 or equivalent.*

*MAT 201 STATISTICAL ANALYSIS I
Basic concepts of probability and introduction to statistical inference. Applications of binomial distribution, normal distribution, linear regression and correlation. 3 Cr. (3-0). *Prerequisite: MAT 103 or equivalent.*

MAT 202 STATISTICAL ANALYSIS II
Presentation of statistical techniques and physical situations to which they apply. Student's T, Chi-Square, and F tests. Linear models for experimental situations; multiple regression and correlation. 3 Cr. (3-0).
Prerequisite: MAT 201.

*MAT 203 ELEMENTARY STATISTICS
Descriptive statistics, frequency distributions, binomial and normal distributions, Central Limit Theorem, decision making tests, Chi-Square, regression and correlation. 3 Cr. (3-0).
Prerequisite: MAT 100 or equivalent.

MAT 211 CALCULUS II
Techniques of integration; limits; sequences and series; vectors; differentiation-partial derivatives, multi-variable differentiation; directional derivatives. 4 Cr. (4-0). *Prerequisite: MAT 112.*

MAT 220 MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence vector spaces, linear transformations, characteristic equation of a matrix; bilinear, quadratic, and Hermintian forms. Admission by permission of the instructor. 3 Cr. (3-0).

MAT 290 SPECIAL STUDIES IN MATHEMATICS
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor 1 - 3 Cr. (1 to 3-0).

**Credit will be given for MAT 201 or MAT 203, but not both.*

OFFICE MACHINE REPAIRS (OR)

OR 12 OFFICE MACHINE REPAIR I
Typewriter operation; functional testing; trade history; machine development, rubber parts, ribbons; machine models; training to perform periodic preventive maintenance inspections. 384 Hrs. (2-22).

OR 22 OFFICE MACHINE REPAIR II
Analysis of typewriter sections and understanding of components; disassembly and reassembly of machines to develop manipulative skills; trade procedures and job standards; drive, power roll, type action, and controlled operations of electric typewriters. 432 Hrs. (3-24).

OR 32 OFFICE MACHINE REPAIR III
History, business use, and sectional components of adding machines; operation and testing of ten-key and full keyboard adding machines; servicing, adjusting, and repair of mechanical problems. 432 Hrs. (3-24).

OR 43 OFFICE MACHINE REPAIR IV
Stencil duplicating arts; duplicator operation and service; introduction to office copiers; office machine business management program. 432 Hrs. (3-24).

OPERATING ROOM TECHNICIAN (OT)

OT 02 BODY STRUCTURE AND FUNCTION
Basic structure and function of the body. 80 Hrs. (5-0).

OT 11 OPERATING ROOM TECHNIQUES I
General introduction to hospitals and operating rooms. Job descriptions and qualifications. Professional, legal, moral, and religious responsibilities. Concepts of anesthesiology, asepsis, and safety. Related housekeeping skills. Personal health and hygiene. Techniques and skills of the operating room technician. Selected learning experiences in the operating room. 320 Hrs. (10-10).

OT 22 OPERATING ROOM TECHNIQUES II
The diagnosis of procedures, positioning, equipment, materials, and anesthesia used in the various specialties with selected experiences in the operating room. 464 Hrs. (5-24).

ORNAMENTAL HORTICULTURE (OH)

OH 11 HORTICULTURE SOILS
A study of soil texture, structure, organic matter, and plant nutrients as they are related to the use of lime and fertilizers. A study of synthetic soils and mositure-air relationships is included. 3 Cr. (2-3).

OH 12 WOODY PLANTS I
An introduction to the study of woody plants grown in nurseries for landscape purposes and of those found in arboretums, woodlands, and fields of the various geographical areas or regions of the United States. 2 Cr. (1-3).

OH 13 HERBACEOUS PLANTS
A study of the classification, identification, and general culture of perennials, bulbs, and roses. Landscape use and design of flower borders is practiced. 3 Cr. (2-3).

OH 20 GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production with emphasis on environmental control, plant culture, facilities, and equipment. Also demonstration of techniques. 3 Cr. (2-3).

OH 21 NURSERY PRODUCTION I
Stress is placed on the theory and practices necessary to produce profitable nursery stock. The maintenance of a productive nursery, soil, crop, and land rotations are studied. 3 Cr. (2-3).

OH 24 PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means with applications in floriculture production, nursery production, and forestry are stressed. 3 Cr. (2-3).

OH 26 WOODY PLANTS II
This course in plant identification is a continuation of Woody Plants I. Additional plants are studied with major emphasis placed upon the study of deciduous trees, shrubs, vines, and ground covers, and their varieties and cultivars. 3 Cr. (2-3). *Prerequisite: OH 12.*

OH 30 FLORAL DESIGN I
Instruction and application of principles in the art of floral design as to form, styles and composition. Designing of floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages is included. 3 Cr. (1-6).

OH 31 GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants with emphasis on techniques used for important commercial crops. Each crop will be grown by students using school facilities. 3 Cr. (2-3).

OH 33 HOUSE & CONSERVATORY PLANTS
The identification, culture, and propagation of florist's pot plants and conservatory plants are studied. Principles and construction of terrariums and dish gardens are included. 3 Cr. (2-3).

OH 35 NURSERY PRODUCTION II
Production schedules are correlated with nursery land use. Factors affecting choice and quantities of stock to be grown, as well as development of cost finding and price establishing are considered. 3 Cr. (2-3).

OH 37 PLANT INSECTS & DISEASES
A combined course in the study of the insects and diseases of horticultural crops. The nature, structure, growth habits, injurious effects, and control of insects and related forms are studied. The most common and injurious plant diseases are studied for identification and control. 3 Cr. (2-3)
Prerequisites: BIO 03.

OH 39 FLORAL DESIGN II
A continuation of Floral Design I with the addition of designing dried and permanent arrangements. Shop layout and becoming familiar with routine procedures in the operation of a flower shop are stressed. 3 Cr. (2-3).
Prerequisites: OH 30.

OH 41 GREENHOUSE CROP PRODUCTION III
A combination of production of potted plants, bedding plants, and other crops using commercial techniques. Production, planning, crop rotation, and the role of management will also be studied. 3 Cr. (2-3).

OH 42 WOODY PLANTS III
An advanced study of plant identification. Special emphasis is placed on the study of broad leaved and narrow leaved evergreens - their varieties and cultivars. 3 Cr. (2-3).
Prerequisites: OH 12 and OH 26.

OH 43 FLOWER SHOP OPERATION
Emphasis is placed on buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop. Perfecting design techniques and originality are practiced in lab. 3 Cr. (2-3).

OH 45 LANDSCAPE CONSTRUCTION
The information gathered in lectures and assignments is utilized in the course to establish landscape features within the horticultural gardens of the College. Establishment and maintenance of turf areas is included. 3 Cr. (1-6).

OH 46 HORITCULTURE MECHANICS
Operation and maintenance of horticulture equipment to include small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

OH 48 LANDSCAPE MAINTENANCE
This course is designed to cover the aspects of turf management and tree care (arboriculture). Establishment and maintenance of different types of turf areas are covered. Emphasis is placed on golf course, institutional, park, and home turf areas. Shade tree planting, climbing, guying, pruning, fertilizing, cabling, and bracing are covered. Evaluation of ornamental trees and general care is stressed. 3 Cr. (2-3). *Prerequisites: OH 12 and OH 37.*

OH 49 LANDSCAPE DESIGN
This course covers the principles and problems of landscape design. Emphasis is placed on the proper and effective use of plant materials in developing domestic and public areas to make them as attractive and utilitarian as possible. Basic drawing and drafting principles are taught. 3 Cr. (1-6).
Prerequisites: OH 12 and OH 26.

PHILOSOPHY (PHL)

PHY 101 INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major perennial problems in philosophy; Meaning and Truth, Perception and External World; God, Mind and Body. 3 Cr. (3-0).

PHY 102 ETHICS AND POLITICAL PHILOSOPHY
Status of deontological language, free will and responsibility, major issue in contemporary political philosophy. 3 Cr. (3-0).

PHYSICAL EDUCATION (PE)

PE 105 PHYSICAL EDUCATION
Instruction and participation in one or more of the following physical activities: Adapted physical ed., archery, badminton, bowling, physical fitness, field hockey, flag football, golf, soccer, speedball, tennis, volleyball and weight training. 1 Cr. (0-2).

PE 106 PHYSICAL EDUCATION
Instruction and participation in one or more of the following physical activities: Adapted physical ed., archery, badminton, basketball, beginning swimming, bowling, elementary games, gymnastics, physical fitness, Red Cross Water Life Saving, modern dance, Red Cross Water Safety Instructors, softball, tennis, track & field, and wrestling. 1 Cr. (0-2).

PE 107 PHYSICAL EDUCATION
Instruction and participation in one or more of the following physical activities: adapted physical ed., archery, badminton, bowling, physical fitness, field hockey, flag football, golf, soccer, speedball, tennis, volleyball and weight training. 1 Cr. (0-2).

PE 108 PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical ed., archery, badminton, basketball, beginning swimming, bowling, elementary games, gymnasitics, modern dance, physical fitness, Red Cross Water Life Saving, Red Cross Water Safety Instructors, softball, tennis, track and field and wrestling. 1 Cr. (0-2).

PE 109 PERSONAL AND COMMUNITY HEALTH
Up-to-date information concerning personal and community health problems of the college student of today. 2 Cr. (2-0).

PHYSICS (PHY)

PHY 20 PHYSICS SURVEY
This course will cover most of the following topics, selected somewhat to meet the needs of the majority of the students in any particular section: Matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat; sound; light; optics; magnetism; electricity; atomic phenonema. 48 Hrs. (3-0).
Prerequisite: MAT 20.

PHY 21 PHYSICS—MECHANICS
Lecture, demonstrations, problem-solving course in elementary mechanics: basic concepts of scientific method; the metric system; vectors, translatory motion; rotary motion, work, power, energy; physical properties of liquids, solids, gasses. 4 Cr. (3-3), 96 Hrs.
Prerequisites: MAT 104 or equivalent and one year high school science.

PHY 22 INTRODUCTION TO METALLURGY
Introduction to science of physical metallurgy; chemical composition, crystallization, effects of mechanical treatment: drawing, rolling, shaping; thermal or heat treatment. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 31 PHYSICS—ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction; basic principles of electricity. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 33 PHYSICS—HEAT AND LIGHT
Basic principles of heat and its measurements: Thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat; study of light including refraction, illumination, optics and color. 4 Cr. (3-3), 96 Hrs. *Prerequisite: PHY 21.*

PHY 111 INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light with special emphasis on electricity and magnetism. 4 Cr. (3-3).

PHY 105 GENERAL PHYSICS I
Principles of mechanics and heat. Calculus will be used whenever this method leads to a more direct solution. 4 Cr. (3-3). *Corequisite: MAT 112.*

PHY 106 GENERAL PHYSICS II
Continuation of PHY 105. Principles of electricity, magnetism, wave motion, optics and sound. 4 Cr. (3-3). *Prerequisite: PHY 105. Corequisite: MAT 211.*

PHY 113 The fundamentals of electrical and radiation physics and the principles underlying the operation of X-ray equipment and auxiliary devices. 3 Cr. (3-0). *Prerequisite: PHY 111.*

PHY 210 MECHANICS
Intermediate course in kinematics and dynamics. Differential and integral calculus are used extensively in derivations and problems. 4 Cr. (3-3). *Prerequisite: PHY 106. Corequisite: MAT 212.*

PHY 220 MODERN PHYSICS
Atomic and nuclear physics including structures of atom and nucleus, radioactivity; fission and fusion; relativity; and the periodic table of elements. 4 Cr. (3-3). *Prerequisite: PHY 106. Corerequisite: MAT 212.*

PLUMBING AND HEATING (PL)

PL 10 PLUMBING AND HEATING I
Introduction to Plumbing and Heating trade; use of hand and power tools; introduction to cast iron, terra cotta, copper, iron, fiber, and etc. Pipe fundamentals; safety procedures. 192 Hrs. (3-9).

PL 15 PLUMBING AND HEATING II
Theory, materials, and methods for venting and draining plumbing systems; installation of septic systems; individual projects. 192 Hrs. (3-9).

PL 20 PLUMBING AND HEATING III
Domestic hot water distribution, etc.; basic science; basic steam and hot water heating; individual projects installing bathrooms, toilet rooms, etc. 192 Hrs. (3-9).

PL 21 PLUMBING AND HEATING IV
Types of steamheating systems; types of hot water systems; boilers; piping; heat transfer equipment; accessories individual plumbing and heating projects; estimating heat loss. 192 Hrs. (3-9).

PL 30 PLUMBING AND HEATING V
Introduction to blueprint reading and pipe drafting; material ordering; repair work; rigging; individual projects and live work. 192 Hrs. (3-9).

PL 31 PLUMBING AND HEATING VI
Advanced blueprint reading; estimating of materials; design and layout of plumbing and heating systems; idividual projects and live work. 192 Hrs. (3-9).

PL 40 PLUMBING AND HEATING VII
Use of lead working tools; bending lead pipe; preparing lead pipe for wiping; introduction to lead wiping; individual projects and live work. 192 Hrs. (3-9).

PL 41 PLUMBING AND HEATING VIII
Wiping round, branch, and vertical lead joints; building maintenance; live work. 192 Hrs. (3-9).

PRACTICAL NURSING (NU)

NU 10 NURSING RELATIONSHIPS
Orientation to the program; the learning process; communication skills; concepts of health; major health problems and agencies; trends in nursing; roles and characteristics of nurses; nursing organizations; legal and religious implications; range and scope of functions of the nurse; administrative lines; fundamentals of ethical psychological, social and human relationships. 48 Hrs. (3-0).

NU 02 SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures; common pathogens, their characterisitics and methods of control; common elements found in the body and their relation to the body in health; the relation of physical properties to the functioning body; the process of metabolism and homeostasis; psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs at all ages and under various conditions, the relation of nutrition to health; vocabulary associated with these concepts. 96 Hrs. (6-0).

NU 10 FOUNDATIONS OF NURSING
Basic nursing knowledges and skills common to all areas of nursing practice, designed to assist the beginning student in meeting nursing needs common to all patients. Emphasis is placed on the basic needs of patients, utilizing individual patient situations including physical hygiene, comfort, rest, nutrition; the process of developing, implementing, and evaluating nursing care plans is studied and used in patient care. Integrated content includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis. 288 Hrs. (6-12).

NU 11 MEDICAL-SURGICAL NURSING-ELEMENTARY (15 weeks)
Principles of patient care dealing with general medical and surgical conditons. Emphasis is placed on the adult patient in relation to his needs; the cause, treatment, and the prevention of illness; the nursing care involved. The

student will be expected to function progressively as a contributing member of the nursing team. She will help develop and carry out patient centered care plans geared to patient needs. Added skills will be acquired in nursing procedures. 225 Hrs. (6-9).

NU 12 PARENTAL AND CHILD HEALTH (15 weeks)
This course focuses on the concept that the family is the basic unit of society. It helps prepare the student for her role as a future parent and for patientside experiences with prenatal, intra-partum and post partum mothers and the well and the ill child. Growth and Development, from the "crable to the grave," history, current trends, and community agencies in parental and child health will be studied. Although deviations from the normal will be considered, the major focus will be on normal aspects. The student will participate in the care of these individuals. 270 Hrs. (6-12).

NU 13 MEDICAL-SURGICAL NURSING-INTERMEDIATE (15 weeks)
A continuation of NU 11. To further develop the knowledge and skills which will enable the student to provide nursing care designed to meet tht needs of patients of all ages and with the major health problems. She will develop skills in the assisting role with critically ill, unconscious, moribund and the mentally ill patients. 495 Hrs. (12-21).

NU 14 PRACTICUM
Students will be assigned to the cooperating institutions for three weeks between semesters to further develop skills, in basic nursing procedures and patient care 90 Hrs. (0-30).

PRE-ENGINEERING (EGR)

EGR 200 STATICS
Vectoral mechanics, force systems, friction, centroids and moments of inertia. 3 Cr. (3-0). *Prerequisite: PHY 105. Corequisite: MAT 211.*

EGR 201 GRAPHICS
Spatial relationships of points, lines, planes and solids, with engineering applications; vectors; graphical mathematics; introduction to nomography. 3 Cr. (2-3).

EGR 210 DYNAMICS
Motion of a particle, relative motion, kinetics of translation, rotation and plane motion. 3 Cr. (3-0). *Prerequisite: EGR 200.*

EGR 220 STRENGTH OF MATERIALS
Axial stress and strain torsion, stresses in beams, elastic curves and deflections of beams, combined stress, columns. 3 Cr. (3-0).

PRINTING (GP)

GP 01 COMPOSING I
Introductory applications of major composing systems; analysis of copy, layouts, and mechanicals. 128 Hrs. (2-6).

GP 02 PHOTOMECHANICAL I
Introductory applications of major process camera, film assembly, and platemaking operations. 128 Hrs. (2-6).

GP 03 PRESS AND BINDERY I
Introductory applications of major printing press and bindery operations. 128 Hrs. (2-6).

GP 04 COMPOSING II
Advanced study and applications on composing machines, copy-preparation principles, working layouts, and mechanicals. 128 Hrs. (2-6).

GP 05 PHOTOMECHANICAL II
Advanced study and applications on process cameras, film assembly, proofing, and plating. 128 Hrs. (2-6).

GP 06 PRESS AND BINDERY II
Advanced study and applications on ink mixing, lithographic presses, bindery equipment, and procedures. 128 Hrs. (2-6).

PSYCHOLOGY (PSY)

PSY 101 GENERAL PSYCHOLOGY
Introduction to the science of human behavior. 3 Cr. (3-0).

PSY 202 EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Individual differences, motivation and emotion. 3 Cr. (3-0).
Prerequisite: PSY 101 or permission of the instructor.

PSY 205 ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis upon their causes, symptoms, and course of treatment. Goal to study normal behavior

by examining such behavior in distortion or in exaggeration. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 210 SOCIAL PSYCHOLOGY
Interaction of individuals in their several group relations, the contacts of harmony, and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 215 DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span, with emphasis on basic principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0). *Prerequisite: PSY 101.*

PSY 290 SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

RADIOLOGIC TECHNOLOGY (RT)

RT 10 RADIOLOGIC TECHNOLOGY I
Basic concept of ethical principles medical structure entailing paramedical profession. Create knowledge in skills of chemical constituents of processing a radiographic film and a thorough knowledge of efficient darkroom (processing) procedure. Gain theoretical, practical instruction applied to radiographic positioning of body structure and organs. Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance and time. 5 Cr. (3-13).

RT 11 RADIOLOGIC TECHNOLOGY II
Develop, devise thorough knowledge of theory of x-ray technique. Necessity of different radiographic views to maintain different views to avoid superimposition of structure. Acquaint the involvement of contrast media, in retrospect to reactions and contraindications to these medias. Give emphasis on nursing procedures as they correlate to radiology. 7 Cr. (4-16).

RT 12 RADIOLOGIC TECHNOLOGY III
Create a working combination or establish a new combination of exposure factors using x-ray components to produce an interpretive film. Provide advanced positioning of special radiographic views to demonstrate various anatomical parts. Introduce the operating suite with relationship of medical, asseptic technique, and radiographic procedures. Specialize in highly technical special radiographic procedures and general indication of each. 10 Cr. (5-15).

RT 13 RADIOLOGIC TECHNOLOGY IV
Knowledge of function, organizational, supervision, legal and financial aggrangement related to radiology. Emphasize certain disease, injury, so to intelligently handle an ill or injured patient. Introduce the role of radiation therapy in treatment of disease, effects on body tissue, and methods of employing radiation therapy. Acquire the basic concept of scientific research, planned exploration and stimulate human knowledge to expand their own horizon. 10 Cr. (5-15).

RT 14 SUMMER SESSION
Internship in associated hospitals for twelve weeks. 5 Cr. (0-40).

SECRETARIAL SCIENCE (BS & ST)

BS 09 TYPEWRITING
Only for non-business students; touch typing, accuracy, speed, report copy, business letters and reports. 1 Cr. 48 Hrs. (0-3).

BS 14 SHORTHAND I
Basic of Gregg shortand, Diamond Jubilee system; outlines; proper techniques; fluency in reading and writing shorthand; dictation. 3 Cr. (2-3).

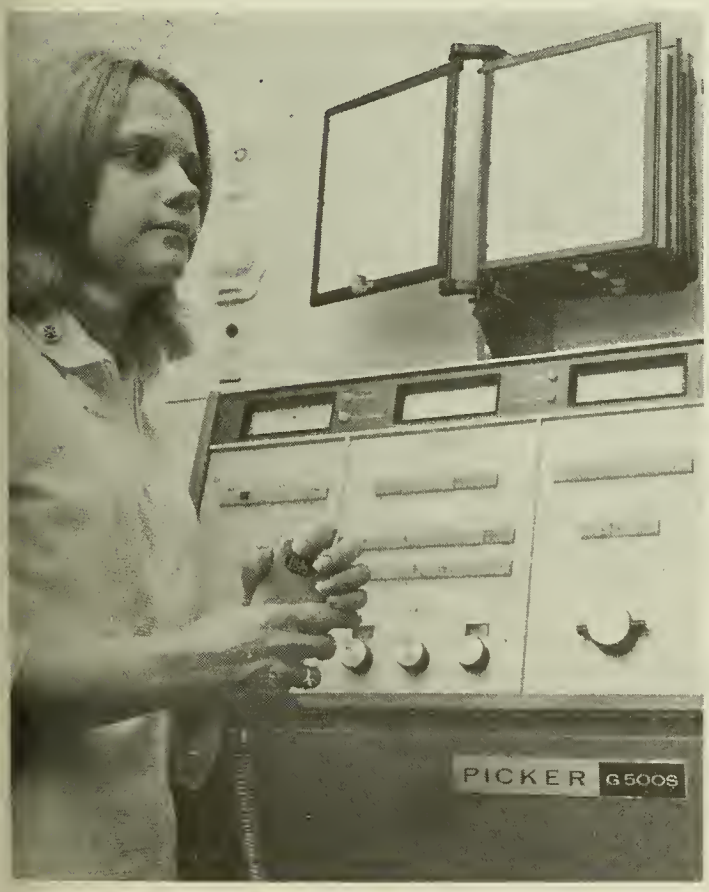
BS 15 TYPEWRITING I
Basics of typewriting: touch typing, mechanical parts, speed, accuracy, business letters and forms. Students passing required standards may be exempt and may elect another subject. 3 Cr. 80 Hrs. (2-3).

BS 17 CLERICAL PROCEDURES
Office duties: handling mail, filing, reception work, office communication systems; development of personal qualities necessary for success, self-evaluation; good working habits and attitudes; opportunity for personality development. 160 Hrs. (4-6).

BS 21 TYPEWRITING II
Advanced typing practices, production typing, special skill techniques, advanced letter writing and tabulation reports, legal forms and documents, clerical duties. 3 Cr. (2-3). *Prerequisite: BS 15 or test qualification.*

BS 23 OFFICE PRACTICE
Operation and practice of ditto, mimeograph, dictating, and transcribing machines; general office practice. 2 Cr. (2-1).

BS 24 SHORTHAND II
Continuation of BS 14: pre-transcription training; vocabulary, spelling, punctuation stressed. 3 Cr. (2-3).
Prerequisite: BS 14 or test qualification.



BS 27 CLERICAL WORKSHOP
Advanced and office-level typewriting; typing of manuscripts, reports, office forms, statistics, production work; advanced office machines: instruction and practice on duplicating equipment, dictation, transcription equipment, bookkeeping machines, electronic calculators. 176 Hrs. (5-6).
Prerequisites: BS 15 and BS 17.

BS 31 TYPEWRITING III
Composing skills, report and manuscript typing, statistical reports, advanced production typing. 3 Cr. (2-3). *Prerequisite: BS 21.*

BS 34 SHORTHAND WORKSHOP
Speed and accuracy dictation and transcription of business letters; business and industry dictation; business forms and office skills; medical, legal, technical shorthand specialization; baisc executive skills 7 Cr. (5-6).
Prerequisite: BS 24.

BS 44 SECRETARIAL WORKSHOP
Advanced dictation and transcription skills; specialization in medical, legal, technical and executive fields; executive office functions; practical experience 9 Cr. (6-9). *Prerequisite: BS 34.*

BS 45 OFFICE INTERNSHIP
Practical experience obtained through work assignments in college offices. 1 Cr. (0-3).

ST 30 MEDICAL TERMINOLOGY
An introduction of medical terminology with emphasis on etiology, symptomatology, pathology, and diagnostic procedures as related to secretarial functions. 3 Cr. (3-0).

SHEET METAL (SM)

SM 10 BASIC SHEET METAL (HAND/MACHINE)
Introduction to sheet metal working tools, metals, techniques and safety regulations; instruction in related drafting and mathematics; accuracy in interpreting elementary blueprints; resistance welding. 400 Hrs. (5-20).

SM 20 INTERMEDIATE PROCESSES
Practical pattern drafting, including heating, air-conditioning and ventilation; construction principales and practices; roofing, spouting and flashing; related drafting instruction; live work from planning stage to completion. 400 Hrs. (5-20).

SM 30 BASIC COMMERCIAL SHEET METAL
Basic welding procedures for light metals; use and care of equipment; fabrication and repair of commercial equipment; ornamental sheet metal work; press working techniques; instruction to more costly metals; spray painting. 400 Hrs. (5-20).

SM 40 COMMERCIAL SHEET METAL
Introduction, theory and techniques of basic processes in plastics; principles, design, and fabrication of industrial and residential ventilation; precision layout; working to close tolerances; advanced theory on commercial sheet metal and work on power-driven machinery. 400 Hrs. (5-20).

SIGN PAINTING (SP)

SP 01 BASIC ALPHABETS
Use and care of sign materials; fundamentals of alphabets; skill in making elements with brush. 400 Hrs. (1-24).

SP 04 COMMERCIAL SIGNS
Brush techniques in laying out and painting commercial signs, trucks, window lettering; masking; using bulletin colors and spray lacquers. 400 Hrs. (1-24). *Prerequisites: SP 01, SP 15, SP 16.*

SP 12 GOLD LEAF
Preparing surfaces for all types of metallic leaf application; treatment of gold leaf on glass. 64 Hrs. (1-3). *Prerequisites: SP 01, SP 15, SP 16.*

SP 13 SILK SCREEN
Executing layout problems for knife-cut silk screens; running production with one man processor. 64 Hrs. (1-3). *Prerequisites: SP 01, SP 15, SP 16.*

SP 14 BILLBOARD PICTORIALS
Enlarging pictorials; mixing paints of different medias; enlargements and painting. 64 Hrs. (1-3).

SP 15 LETTER STROKES AND SHOWCARD LAYOUT
Continuation of practice in letter strokes; preparation of thumbnail sketches and showcard layout. 400 Hrs. (1-24). *Prerequisite: SP 01.*

SP 16 COMMERCIAL SHOWCARDS
Continuation of thumbnail sketches and showcard layout; emphasis on quality with speed. 400 Hrs. (1-24). *Prerequisites: SP 01, SP 15.*

SOCIOLOGY (SOC)

SOC 101 INTRODUCTION TO SOCIOLOGY
Introduction to methods used by sociologists in studying how people live together. Dynamic relationships among society, culture and personality serve as focus for the course materials. 3 Cr. (3-0).

SOC 102 GENERAL ANTHROPOLOGY
A survey of the physical and cultural evolution of man and society. Emphasis is placed upon the relationship of man's physical structure to behavior and also upon comparative descriptions of recent primitive societies. 3 Cr. (3-0).

SOC 201 MARRIAGE AND THE FAMILY
The history, structure, and functions of modern American family life, emphasizing dating, courtship, factors in marital adjustment, and the changing status of family members. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 203 INTRODUCTION TO SOCIAL WORK
Basic concepts on social welfare programs, social case work, and field work. Especially designed for students planning a career in social work. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 205 URBAN SOCIOLOGY
The concept of community is treated as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasis is placed upon characteristic institutions and problems of modern city life. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 207 CRIMINOLOGY
The nature, genesis, and organization of criminal behavior is examined from both group and individual viewpoints. Juvenile delinquency and the treatment of crime are presented. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 290 SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1 - 3 Cr. (1 to 3-0).

TECHNICAL ILLUSTRATION (TI)

TI 21 PERSPECTIVE DRAWING
Instruction in one-point or parallel perspective, two-point or angular perspective; projection method and measuring plan emphasized. 4 Cr. (2-6).

TI 23 RENDERING I
Shading of illustrations using various water base pigments to produce wash and opaque illustrations of geometric constructions. 4 Cr. (2-6).

TI 31 AXONOMETRIC DRAWING
Instruction in isometric, dimetric and trimetric projections; instruction in use of popular industrial drawings aids. 4 Cr. (2-6).

TI 33 COLOR
Color theory and training in the use and application of color; full color rendering of products; use of flat colors and color aids. 2 Cr. (1-3).

TI 34 RENDERING II
Continuation of Rendering I; fundamental training and skills required to produce continuous tone drawings with airbrush. 4 Cr. (2-6).

TI 40 ILLUSTRATION PRACTICE
Training in rendering art for technical manuals and related art, combinations for rendering learned techniques, preparation of presentation folio. 4 Cr. (2-6).

TI 41 TECHNICAL DRAWING
Continuation of perspective and axonometric drawing course; production of illustration to meet employment requirements including assembly, exploded and cut-away views of mechanical objects. 4 Cr. (2-6).

TI 42 LAYOUT AND DESIGN
Basic fundamentals of layout; creation of sketches, designs, thumbnail sketches, comprehensives, with emphasis on technique, structure, mechanics, awareness, and communication. 2 Cr. (1-3).

TOOL DESIGN TECHNOLOGY (TD)

TD 21 TOOL DRAFTING (8 weeks)
Transition between drafting and tool design; drawings, techniques; purchased parts; standards of shop drawings; material lists; selection of materials and heat treating of metals. 4 Cr. (4-12). *Prerequisite: ED 11.*

TD 30 CUTTING – TOOL DESIGN (8 weeks)
Design of single-edge cutting tools, boring bars and multiple-edge cutting tools. 4 Cr. (4-12).

TD 31 FIXTURE DESIGN (8 weeks)
Design of leaf and tumble jugs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates. 4 Cr. (4-12).

TD 40 GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing of programs for point to point and contouring tape controlled machines; design of plug, snap, ring, flush pin depth, length and indicating gages. 4 Cr. (4-12). *Prerequisite: ED 11.*

TD 41 DIE DESIGN (8 weeks)
Designing of cutting, forming, drawing, and cavity dies; simple progressive and compound arrangements. 4 Cr. (4-12).

TOOLMAKING TECHNOLOGY (TT)

TT 04 ELEMENTARY MACHINE SHOP I
Elementary machine operation: bench, drill press, shaper, engine lathe, milling machines. 3 Cr. (2-3).

TT 05 ELEMENTARY MACHINE SHOP II
Theory, setup and operation of turret lathes and automatic screw machines; introduction to quality control; use of precision instruments. 3 Cr. (2-3).

TT 06 ELEMENTARY MACHINE SHOP III
Theory and practice of grinding machines and wheels; cylindrical, internal and surface grinding; introduction to heat treating. 3 Cr. (2-3).

TT 11 ENGINE LATHE I
Theory and tool bit grinding; turning; facing; boring; thread cutting. 4 Cr. (2-6).

TT 12 MILLING MACHINE I
Practice in end, slab, and straddle milling; all types of straight and plain milling. 4 Cr. (2-6).

TT 14 BENCH/DRILL PRESS/SHAPER
Use of hand tools to produce layouts and objects by hand; simple filing, sawing, assembling; types of drill presses; drill sharpening; drilling to a layout; drill jigs. Producing parallel and square surfaces; shaping rectangular objects. 3 Cr. (1-6).

TT 20 TURRET LATHE/AUTO. SCREW MACHINES
Theory, setup and operation of machines; sequence of operations and tooling; cam development. 4 Cr. (2-6).

TT 21 QUALITY CONTROL/BLUEPRINT READING
Use of precision instruments; reading mechanical drawings; controlling quality of work by sampling method. 4 Cr. (2-6).

TT 23 HEAT TREATING
Theory and practice in normalizing, carburizing, hardening, and tempering of various types of steel; heat treatment of metals. 3 Cr. (1-6).

TT 30 BENCH/JIG BORER
Theory and practice in advanced precision filing; fitting, lapping, and assembling of precision parts required on dies, jigs and fixtures; boring holes to very close dimensions and locations, using micrometer measuring instruments on machines. 2 Cr. (1-3).

TT 31 ENGINE LATHE II
Theory and practice in advanced turning and face plate work; thread cutting of all types; taper work. 4 Cr. (2-6).

TT 32 MILLING MACHINE II
Theory and practice in producing spur, helical and bevel gears; indexing, spiral and cam milling; milling punches and dies. 4 Cr. (2-6).

TT 40 GRINDING MACHINES
Theory and practice in cylindrical, internal, surface, tool and cutter grinding; thread grinding of studs, taps; special threads. 7 Cr. (2-15).

WELDING (WE)

WE 01 ACETYLENE WELDING
Selected units in basic acetylene welding for plumbing students. 80 Hrs. (0-5).

WE 02 ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 80 Hrs. (0-5).

WE 15 ACETYLENE WELDING
Theory and practice welding of sheet metal and mild steel plate; oxy-acetylene cutting; pipe welding; welding and brazing of ferrous and non-ferrous metals; weld testing; shop safety. 400 Hrs. (1-24).

WE 25 ELECTRIC WELDING
Principles and applications of basic electric welding using various types of electrodes for welding of steel plate in all positions; pipe welding; cast iron welding; weld testing. 400 Hrs. (1-24).

WE 35 INERT GAS WELDING
Theories and practices of manual inert gas shield technique (TIG) and short arc, high speed, semi-automatic, metallic arc process (MIG). 400 Hrs. (1-24).

WE 45 WELDING (ADVANCED)
Practical theory application of weldments of specifications of AWS, API and ASME codes; all position welding of heavy plate and pipe; testing and weld specimens. 448 Hrs. (1-27).

directory

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Irving A. Berndt, Jr. / Instructor in Broadcasting

Frederick L. Bierly / Assistant Professor of Computer Science Technology, B.S., Lock Haven State College; M.S., Bucknell University (Sabbatical, Spring 1975)

Seth M. Bierly / Instructor in Toolmaking Technology

Clarence E. Bierman / Assistant Professor of Toolmaking Technology

Frank J. Boritz / Instructor in Carpentry and Building Construction Technology

Robert G. Bowers / Associate Professor of Mathematics, B.S., Juniata College; M.S., University of Delaware; Ph.D., The Pennsylvania State University

William C. Bradshaw / Assistant Professor of Tilesetting, B.S., M.S., Mansfield State College

Clyde L. Brass / Instructor in Service and Operation of Heavy Construction Equipment

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William O. Burdett / Associate Professor of Physical Education, B.S., Lock Haven State College; M.S., Bucknell University

Daniel A. Campion / Instructor in Service and Operation of Heavy Construction Equipment

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Larry S. Clark / Instructor in Welding

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Benjamin H. Eldred / Instructor in Service and Operation of Heavy Construction Equipment

George A. Elias / Instructor in Welding

Jacquelynne D. Ellis / Instructor in Practical Nursing, R.N., Harrisburg Polyclinic Hospital School of Nursing

Dan C. Emick / Instructor in Service and Operation of Heavy Construction Equipment

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John H. Jones / Instructor in Mathematics, B.S.E.E., The Pennsylvania State University

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Harvey H. Kuhns, Jr. / Associate Professor of Economics, B.S., Lycoming College; M.S., Bucknell University

Phillip D. Landers / Assistant Professor of Business Administration, B.S., Bloomsburg State College; M.B.A., Michigan State University

John H. Lego / Instructor in Mathematics, B.S., The Pennsylvania State University

Patricia E. Lewis / Assistant Professor of Mathematics, B.S., Lycoming College; M.S., Bucknell University

Joseph G. Mark, R.A. / Instructor in Architecture, B.Arch., The Pennsylvania State University, A.I.A.

Florence M. Markley / Instructor in English, B.S., Millersville State College

Joseph P. Martin / Instructor in Plumbing and Heating

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Dale A. Metzker / Assistant Professor of Graphic Arts

Jack A. Mirto / Instructor in Auto Body Repair

Robert S. Mix, Jr. / Instructor in Electrical Technology and Construction

Vivian Moon / Instructor in Food Service, B.S., The Pennsylvania State University (On Leave, Fall, 1974)

Gladys L. Morris / Instructor in English, B.S., Lock Haven State College

Robert K. Most / Instructor in Psychology, B.S., Duke University; M.A., Temple University

Veronica M. Muzic / Instructor in English, B.A., Misericordia College; M.A., Bucknell University

Richard E. Nellis, Jr. / Assistant Professor of Economics, B.A., Cornell University; M.A., Bucknell University (On Leave, 1974-75)

Harold L. Newton / Instructor in Graphic Arts

Donald R. Nibert, / Assistant Professor of Forest Technology, B.S., M.S., West Virginia University

Robert L. Norton / Instructor in Aviation Mechanics A.A.S., The Williamsport Area Community College

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James C. Pivirotto / Instructor in Forest Technology, B.S., The Pennsylvania State University

Frank L. Porter / Instructor in English, B.A., University of Florida; M.A., Bucknell University

Christoph Radke / Instructor in Carpentry, A.A.S., The Williamsport Area Community College

Frederick J. Rankinen / Instructor in Civil Engineering Technology, B.S., Ohio State University

Richard W. Rankinen / Instructor in Forest Technology, B.S., University of Idaho

Kenneth S. Reese / Instructor in Horticulture, B.S., The Pennsylvania State University; M.Ed., Shippensburg State College

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Marlin M. Roush / Assistant Professor of Automotive Technology

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Martin K. Salabes, P.E / Assistant Professor of Electronics Technology, B.E.E., Cornell University

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Charles Q. Simcox / Associate Professor of English, B.S., Lock Haven State College; M.S., Bucknell University

Leroy G. Simpson / Instructor in Physics, B.S., Lycoming College

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Robert G. Snauffer / Instructor in Electrical Technology and Construction

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Harry C. Specht / Instructor in Physical Education, B.S., Lock Haven State College; M.S., Univeristy of Bridgeport

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William L. Stevens / Assistant Professor of Service and Opération of Heavy Construction Equipment, B.S., University of Nebraska; M.Ed., Colorado State University

Robert A. Stout / Assistant Professor of Electronics Technology, C.E.T.

Dale R. Straub / Assistant Professor of Drafting Technology, C.E.T., A.A.S., The Williamsport Area Community College; B.S., The Pennsylvania State University

Robert W. Stull / Instructor in Electrical Technology and Construction, A.A.S., The Williamsport Area Community College; B. Tech., Rochester Institute of Technology

Bonnie R. Taylor / Assistant Instructor in Business Administration B.S., Bloomsburg State College (On Leave, 1974-75-76)

Mary E. Temple / Instructor in Practical Nursing, R.N., Williamsport Hospital School of Nursing

Anthony Terrizzi / Assistant Professor of Technical Illustration and Drafting Technology

Damon L. Thompson / Assistant Professor of English, B.F.A., Ohio State University; M.F.A., State University of Iowa (Sabbatical, Spring 1975)

Ronald E. Thompson / Professor of Biology, B.S., Lycoming College; M.S., Kansas State College

Ray Tyler / Assistant Professor of Business Administration, B.S., Susquehanna University; M.S.B.A., Bucknell University

Rita C. Ulrich / Assistant Professor of Business Administration, B.S., M.S., Bloomsburg State College

Robert S. Ulrich / Assistant Professor of English, A.B., Lycoming College; M.Ed., Bloomsburg State College

Chalmer C. Van Horn / Associate Professor of Drafting Technology, B.S., The Pennsylvania State University

John J. Watson / Instructor in Carpentry and Building Construction Technology

Richard J. Weilminster / Instructor in Horticulture, A.A.S., State University of New York; B.S., University of Georgia; M.S., The Pennsylvania State University

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calendar

1974-1975 WACC ACADEMIC CALENDAR

FALL TERM (Classes - 15 Weeks; Exams - 3 Days)

AUGUST	28	Faculty Organization and Convocation
	28-29	Registration
	30	Student Orientation
SEPTEMBER	2	Labor Day
	3	Classes Begin
NOVEMBER	28	Thanksgiving Vacation Begins
DECEMBER	2	Classes Resume
	18	Classes End
	19-21	Final Exams
	21	End of Fall Term

SPRING TERM (Classes - 15 Weeks; Exams - 5 Days)

JANUARY	6-7	Registration
	8	Classes Begin
MARCH	27	Spring Vacation Begins
APRIL	1	Classes Resume
	25	Classes End
	28	Final Exams Start
MAY	2	Final Exams End
	2	End of Spring Term
	10	Commencement

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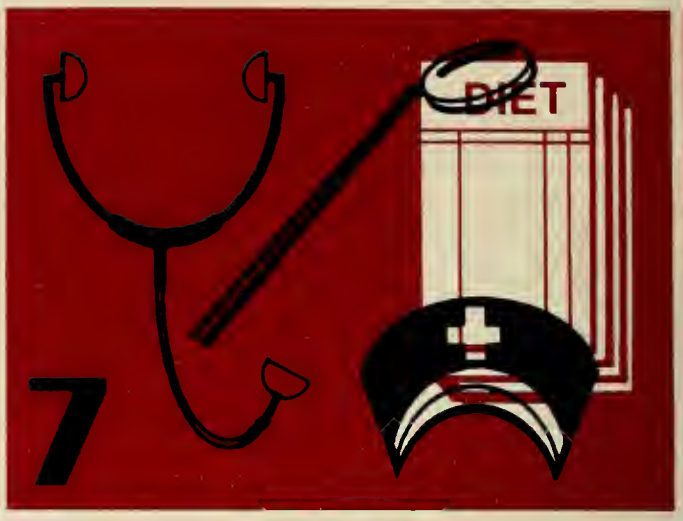

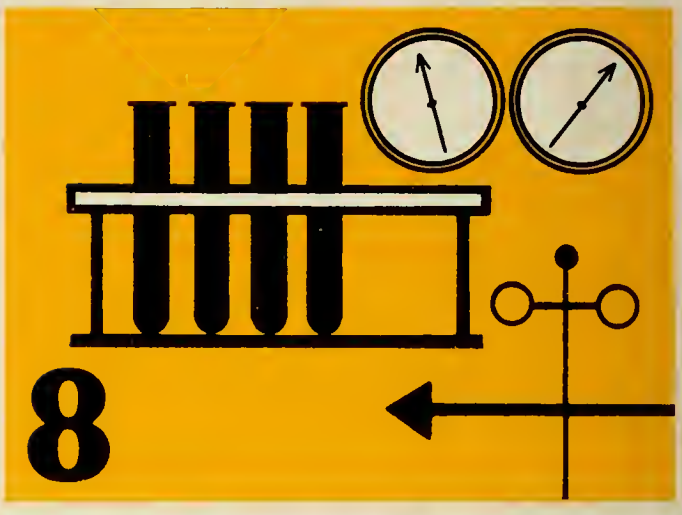

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